ABSTRACTS

Policy Research Working Paper Series

Numbers 2619–2679

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ABSTRACTS
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Numbers 2619–2679

2619. Do Banks Provision for Bad Loans in Good Times? Empirical Evidence and Policy Implications

Michele Cavallo and Giovanni Majnoni
(June 2001)

The general recognition that bank capital should provide a buffer for "unexpected" losses assumes that "expected" losses are considered in setting loan loss provisions. Failure to provide coherent and internationally accepted regulation of provisions for loan losses reduces the usefulness of minimum capital regulations, especially in emerging economies.

Recent debate about the pro-cyclical effects of bank capital requirements has ignored the important role that bank loan loss provisions play in the overall framework of minimum capital regulation.

It is frequently observed that underprovisioning, due to inadequate assessment of expected credit losses, aggravates the negative effect of minimum capital requirements during recessions because capital must absorb both expected and unexpected losses. Moreover, when expected losses are properly reflected in lending rates but not in provisioning practices, fluctuations in bank earnings magnify true oscillations in bank profitability.

The relative agency problems faced by different stakeholders may help explain the prevailing and often unsatisfactory institutional arrangements.

Cavallo and Majnoni test their hypotheses with a sample of 1,176 large commercial banks—372 of them in non-G10 countries—for the period 1988–99. After controlling for different country-specific macroeconomic and institutional features, they find robust evidence among G10 banks of a positive association between loan loss provisions and banks' pre-provision income. Such evidence is not confirmed for non-G10 banks, which on average provision too little in good times and are forced to increase provisions in bad times.

The econometric evidence shows that the protection of outsiders' claims—the claims of minority shareholders in common law countries and of fiscal authorities in countries with high public debt—on bank income has negative effects on the level of bank provisions.

This paper—a product of the Financial Sector Strategy and Policy Department—is part of a larger effort in the department to study the impact of financial regulation on economic development. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Elena Mekhova, room MC9-622, telephone 202-458-5986, fax 202-522-2031, email address emekhova@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at mc399@is.nyu.edu or gmajnoni@worldbank.org. (27 pages)

2620. Who Owns the Media?

Simeon Djankov, Caralee McLiesh, Tatiana Nenova, and Andrei Shleifer
(June 2001)

Almost universally the largest media firms are controlled by the government or by private families.

Djankov, McLiesh, Nenova, and Shleifer examine patterns of media ownership in 97 countries around the world. They find that almost universally the largest media firms are controlled by the government or by private families.

Government ownership is more pervasive in broadcasting than in the printed media. Government ownership is generally associated with less press freedom, fewer political and economic rights, inferior governance, and, most conspicuously, inferior social outcomes in education and health. The adverse effects of government ownership on political and economic freedom are stronger for newspapers than for television.

The adverse effects of government ownership of the media do not appear to be restricted solely to instances of government monopoly.

Djankov, McLiesh, Nenova, and Shleifer present a range of evidence on the adverse consequences of state ownership of the media. State ownership of the media is often argued to be justified on behalf of the social needs of the disadvantaged. But if their findings are correct, increasing private ownership of the media—through privatization or by encouraging the entry of privately owned media—can advance a variety of political and economic goals, especially those of meeting the social needs of the poor.

This paper—a product of the Office of the Senior Vice President, Development Economics—is one in a series of background papers prepared for *World Development Report 2002: Institutions for Markets*. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Vicky Sugui, room MC3-586, telephone 202-473-7951, fax 202-522-0056, email address rsugui@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at sdjankov@worldbank.org, cmcliesh@worldbank.org, tnenova@worldbank.org, or ashleifer@harvard.edu. (52 pages)

2621. Does Indonesia Have a "Low-Pay" Civil Service?

Deon Filmer and David L. Lindauer
(June 2001)

Indonesia has long been characterized as having a "low-pay civil service," which is in turn used to explain corruption at various levels of government. Analysis of individual and household level data show that the earnings of government employees, on average, is comparable to what they might earn in the private sector. Changing the structure of compensation may be an important part of civil service reform, but should not be seen as the main instrument to address corruption.

Government officials and policy analysts maintain that Indonesia's civil servants are poorly paid and have been for decades. This conclusion is supported by anecdotal evidence and casual empiricism. Filmer and Lindauer systematically analyze the relationship between government and private compensation levels using data from two large household surveys carried out by Indonesia's Central Bureau of Statistics: the 1998 Sakernas and 1999 Susenas. The results suggest that government workers with a high school education or less, representing three-quarters of the civil service, earn a pay premium over their private sector counterparts. Civil servants with more than a high school education earn less than they would in the private sector but, on average, the premium is far smaller than commonly is alleged and is in keeping with public/private differentials in other countries. These results prove robust to varying econometric specifications and cast doubt on low pay as an explanation for government corruption.

This paper—a product of Public Service Delivery, Development Research Group—is part of a larger effort in the group to understand ways to improve the delivery of public services. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Hedy Sladovich, room MC2-609, telephone 202-473-7698, fax 202-522-1154, email address hsladovich @worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at dfilmer@worldbank. org or dlindauer@wellesley.edu. (18 pages)

2622. Community Programs and Women's Participation: The Chinese Experience

David Coady, Xinyi Dai, and Limin Wang
(June 2001)

Effectively implemented gender-focused interventions can have substantial social benefits when supported by the necessary legal and institutional framework, judging from this rural program in China.

Using household data specifically collected for the purpose of evaluation, Coady, Dai, and Wang empirically evaluate the impact on household income of a rural program in China that focuses on increasing women's economic and social participation in the local community. They find that the program substantially increases women's participation and household income, and also generates positive social benefits.

The authors' results also suggest that the income gains accrue only to participants, and partly at the expense of nonparticipants. They find that the magnitude of the program's impact depends sensitively on the program's ability to increase participation rates within villages.

In the presence of the program, individual participation helps to prevent negative externalities and to buy into the positive gains accruing to participants.

The authors' results support the view that effectively implemented gender-focused interventions can have substantial social benefits when supported by the necessary legal and institutional framework.

This paper—a product of the Poverty Reduction and Economic Management Sector Unit, East Asia and Pacific Region—is part of a larger effort in the region to better understand the impact of gender-focused policies on development. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Limin Wang, room MC5-208, telephone 202-473-7596, fax 202-522-1735, email address lwang1@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. David Coady may be contacted at d.coady @cgiar.org. (37 pages)

2623. Trade Liberalization in China's Accession to the World Trade Organization

Elena Ianchovichina and Will Martin
(June 2001)

China's forthcoming access to the World Trade Organization involves reform in many sectors, both domestic and trade-related. The starting point for reform is a partially reformed economy with relatively high import duties, in which export sectors benefit from liberal duty exemptions on inputs. Both China and its major trading partners will gain from access—with China gaining most (perhaps half of the estimated $56 billion in annual welfare gains). Some developing countries will suffer small losses because of increased competition from China. The adjustments required are greatly reduced by China's dramatic liberalization in the 1990s.

Before reform, China's trade was dominated by a few foreign trade corporations with monopolies on the trade of specific ranges of products. Planners could control imports through these corporations so there was little need for conventional instruments such as tariffs, quotas, and licenses. Trade reforms increased the range of enterprises eligible to trade in specific commodities and led to the development of indirect new trade instruments, such as duty exemptions. Duty exemptions almost completely liberalized the imports of intermediate inputs used to produce exports and investment goods used in join ventures with foreign enterprises.

Comprehensive liberalization measures in China's World Trade Organization (WTO) accession package will help ease this problem as tariff reduction reduces the costs of domestic inputs to exporters. WTO commitments will also lead to the abolition of most nontariff barriers and of quotas on textiles and clothing.

With accession, China 's share of world exports may almost double between 1995 and 2005—an estimate that is smaller than those found in studies that do not incorporate duty exemptions. (Duty exemptions *were* a form of partial liberalization, so any further reduction in protection will boost trade volume less than some estimate.) With reform, labor-intensive industries are expected to grow most, especially exports of apparel. Wages of unskilled workers should rise.

This paper—a product of Trade, Development Research Group—is part of a larger effort in the group to assess the implications of trade reform for developing countries. Copies of the paper are available free from the World Bank, 1818 H Street, NW, Washington, DC 20433. Please contact Lili Tabada, room MC3-333, telephone 202-473-6896, fax 202-522-1159, email address ltabada@worldbank. org. Policy Research Working Papers are also posted on the Web at http://econ. worldbank.org. The authors may be contacted at eianchovichina@worldbank. org or wmartin1@worldbank.org. (35 pages)

2624. Are Incentives Everything? Payment Mechanisms for Health Care Providers in Developing Countries

Varun Gauri
(June 2001)

Can provider payment mechanisms solve some of the key problems in developing countries' health care systems by "getting the incentives right?" Perhaps.

Reforms in developing countries' health care systems often focus on "getting the incentives right." They aim to use provider payments to optimize the use of scarce resources, transform clinical practice, and improve the quality of care. Gauri examines the extent to which provider payment mechanisms can achieve those objectives in developing countries.

Because of data limitations, selection effects, and numerous confounding variables, a body of convincing empirical research on the effects of different payment mechanisms on provider behavior in developing countries is at least several years away. For that reason Gauri has written this paper in the spirit of an essay—an effort to glean practical knowledge from the partial theoretical and empirical findings that are available.

He identifies four key problems in the health care systems of developing countries. First, public facilities, which provide most secondary and tertiary health care in most countries, offer poor-quality services. Second, providers cannot be enticed to rural and urban marginal areas, leaving large segments of the population without adequate access to health care. Third, the composition of health services offered and consumed is suboptimal. And fourth, coordination in the delivery of care—including referrals, second opinions, and teamwork—is inadequate. Gauri assesses the extent to which changes in provider payments might address each of these problems.

He concludes that identifying the best policy instruments for addressing these problems requires further research. But on the basis of existing research, he recommends the following:

• Experiments and pilot projects for improving public hospitals should focus on mission clarity and organizational simplification.

• Programs for improving the composition of utilization should experiment with payments to consumers and with medical and nursing training.

• Initiatives for attracting providers to rural areas should use explicit deferred compensation contracts to improve monitoring.

• More research should be done on developing mechanisms for increasing medically indicated professional referrals.

This paper—a product of Public Service Delivery, Development Research Group—is part of a larger effort in the group to examine incentives for service delivery. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Hedy Sladovich, mail stop MC2-204, telephone 202-473-7698, fax 202-522-1154, email address hsladovich@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The author may be contacted at vgauri@worldbank.org. (20 pages)

2625. Australia's Experience with Local Content Programs in the Auto Industry: Lessons for India and Other Developing Countries

Garry Pursell
(June 2001)

Australia's (and other countries') experience with local content programs—especially in the auto industry—in the 1960s and 1970s suggests that they do not serve the economic interests of India or other developing countries seeking to legitimize them at the World Trade Organization. The Trade-Related Investment Measures agreement is a useful counterweight to the influence of populist support and domestic lobbies in countries where local content schemes are politically difficult to oppose.

Local content programs—especially in the auto industry—accompanied many import substitution policies during the 1960s and 1970s, but most were abandoned in countries that liberalized trade in the 1980s and early 1990s. The high economic costs of these programs and their inherent incompatibility with open, nondiscriminatory international trade were recognized in the Uruguay Round Agreement on Trade-Related Investment Measures (the TRIMS agreement), which required developing countries to phase them out over five years. Despite this, a number of developing countries have introduced new local content programs and are currently pressing to relax the TRIMS rules and to extend the year 2000 phaseout deadline.

A leader in this effort at the World Trade Organization (WTO) is India, which in 1995 introduced an "indigenisation" program for its auto industry that typifies similar programs in other developing countries. Under India's program, permission to import auto components for assembly is contingent on agreements to reach specified levels of "indigenisation," plus enough commitments to export cars or components to cover the foreign exchange cost of imported components. The system is implemented by a *de facto* ban on the import of built-up cars, and import licensing of car components.

The United States and the European Union challenged the system as a violation of the TRIMS agreement. Since 1996, similar arrangements in Brazil, Indonesia, Mexico, and the Philippines have been the subject of WTO disputes.

Australia has a long, well-documented history of local content programs in the auto industry. Australia's programs started in 1948 and began to wind down only in 1985. Australia's strongly counter-competitive programs—the administering authority was effectively cartellizing the industry—led to market fragmentation, high costs and prices, and lower national income. They retarded rather than promoted technical change and reduced rather than increased employment in auto production, distribution, and repair. Export requirements increased the scheme's economic costs, which involved bureaucratic micromanagement of the industry and high transaction costs for the government and the private sector. Once the schemes were established, they were very difficult to remove owing to their populist appeal, their lack of transparency, and the vested interests of the international and domestic firms which relied on them, as well as other interest groups including the administering bureaucracies, auto industry trade unions, and politicians in electorate areas in which car production was concentrated.

The Australian experience, and similar experiences of developing countries with these programs during the 1960s and 1970s, suggest that they do not serve the economic interests of India and the other developing countries which are presently seeking to legitimize them at the WTO. On the contrary, the present TRIMS agreement is a useful external counterweight to the influence of domestic lobbies and populist arguments, which in Australia and elsewhere have made local content schemes politically difficult to oppose, and once established, even more difficult to remove.

An earlier version of this paper—a product of Trade, Development Research Group—was presented at the conference on WTO, Technology Transfer, and the Globalization of Firms (Institute of Economic Growth, New Delhi, March 25-26, 1999). Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Lili Tabada, room MC3-333, telephone 202-473-6896, fax 202-522-1159, email address ltabada@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The author may be contacted at gpursell@worldbank.org. (18 pages)

2626. Mandatory Severance Pay: Its Coverage and Effects in Peru

Donna MacIsaac and Martín Rama
(June 2001)

In Peru, as in many other developing countries, employers have the legal obligation to compensate workers who are dismissed through no fault of their own. Is this an efficient mechanism for providing income support to the unemployed?

In Peru, as in many other developing countries, employers have the legal obligation to compensate workers who are dismissed through no fault of their own. Is this an efficient mechanism for providing income support to the unemployed?

MacIsaac and Rama seek an answer to this question, using individual records from a household survey with a panel structure. Relying on five coverage indicators, they show that roughly one in five workers in the private sector, and one in three wage earners in the private sector, is legally entitled to severance pay. Coverage is more prevalent among wealthier workers.

Results based on several empirical strategies suggest that workers "pay" for their entitlement to severance pay through lower wages.

Consumption among unemployed workers who receive severance pay is 20 to 30 percent greater than among those who do not. Consumption among these workers is actually higher than consumption among *employed* workers, suggesting that mandatory severance pay is overgenerous in Peru.

This paper—a product of Public Service Delivery, Development Research Group—is part of a larger effort in the group to assess policies aimed at dealing with job loss. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Hedy Sladovich, mail stop MC2-204, telephone 202-473-7698, fax 202-522-1154, email address hsladovich@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. Martín Rama may be contacted at mrama@worldbank.org. (38 pages)

2627. With the Help of One's Neighbors: Externalities in the Production of Nutrition in Peru

Harold Alderman, Jesko Hentschel, and Ricardo Sabates
(June 2001)

Public and private investments in education and infrastructure (such as water and sanitation infrastructure) for one household carry over to neighboring households. Shared knowledge has a significant impact on children's nutrition in rural areas. There is a direct link between the caregivers' education and their children's health status and an additional impact from living near neighbors with more education.

Both public and private resources contribute to children's nutritional status. And investments by one household may improve health in other neighborhood households by improving the sanitation environment and increasing shared knowledge.

Alderman, Hentschel, and Sabates measure the externalities of investments in nutrition by indicating the impact of women's education in Peruvian neighborhoods on children's nutrition in other households, after controlling for those households' education and income. They find that in rural areas this shared knowledge has a significant impact on nutrition. The coefficient of an increase in the average education in the neighborhood is appreciably larger than the coefficient of education in isolation. That is, educating women in rural areas improves all children's nutritional status even for those whose caregivers are themselves not educated.

In both urban and rural areas, they observe externalities from investments in sanitation made by neighboring households. They do not find the same externalities in the case of investments only in the household water supply.

There is a direct link between the caregivers' education and their children's health status. Education transmits information about health and nutrition. It teaches numeracy and literacy, which help caregivers read labels and instructions. By exposing caregivers to new environments, it makes then receptive to modern medical treatment. It gives women the confidence to participate in decisionmaking within a household, and it gives men and women the confidence to interact with health care professionals.

This paper—a joint product of Poverty, Development Research Group and the Poverty Division, Poverty Reduction and Economic Management Network—is part of a larger effort in the Bank to better understand the impact of public services. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Patricia Sader, room MC3-556, telephone 202-473-3902, fax 202-522-1153, email address psader@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at halderman@worldbank.org, jhentschel@worldbank.org, or rsabates @students.wisc.edu. (19 pages)

2628. Monopoly Power and Distribution in Fragmented Markets: The Case of Groundwater

Hanan G. Jacoby, Rinku Murgai, and Saeed Ur Rehman
(June 2001)

Evidence from Pakistan's Punjab indicates that monopoly power in the market for groundwater (irrigation water extracted using private tubewells) results in a substantial resource misallocation. But despite this substantial misallocation of groundwater, a welfare analysis shows that monopoly pricing of groundwater has limited effects on equity and efficiency. Policies aimed at eliminating monopoly pricing would do little to help the poorest farmers.

Using data from Pakistan's Punjab, Jacoby, Murgai, and Rehman examine monopoly power in the market for groundwater—irrigation water extracted using private tubewells—a market characterized by barriers to entry and spatial fragmentation.

Simple theory predicts that tubewell owners should price-discriminate in favor of their own share tenants. And this analysis of individual groundwater transactions over an 18-month period confirms such price discrimination.

And among those studied, tubewell owners and their tenants use considerably more groundwater on their plots than do other farmers.

Jacoby, Murgai, and Rehman also provide evidence that monopoly pricing of groundwater leads to compensating—

albeit small—reallocations of *canal water*, which farmers exchange in a separate *informal* market.

Despite the substantial misallocation of groundwater, a welfare analysis shows that monopoly pricing has limited effects on equity and efficiency. In the long run, a policy aimed at eliminating monopoly pricing would do little to help the poorest farmers.

This paper—a product of Rural Development, Development Research Group—is part of a larger effort in the group to examine the role of policy and policy reform on rural development. The study was funded by the Bank's Research Support Budget under the research project "Market Development and Allocative Efficiency: Irrigation Water in the Punjab." Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Pauline Kokila, room MC3-305, telephone 202-473-3716, fax 202-522-1151, email address pkokila@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at hjacoby @worldbank.org or rmurgai@worldbank.org. (46 pages)

2629. Bridging the Digital Divide: How Enterprise Ownership and Foreign Competition Affect Internet Access in Eastern Europe and Central Asia

George R. G. Clarke
(July 2001)

In transition economies, enterprises that are even partly foreign-owned are twice as likely to have access to the Internet as state- and privately owned enterprises with no foreign ownership. And there is some evidence of spillovers, because enterprises that compete with foreign-owned domestic enterprises or imports are also more likely to have Internet access. Employee-owned enterprises are less likely to have Internet access.

Many observers attributed the rapid productivity growth observed in the United States in the mid- to late 1990s to the growing use of information and the Internet. This in turn created concern that developing and transition economies—where use of information technology and the Internet was less widespread—would be left behind as productivity and growth accelerated in technologically advanced countries and stagnated elsewhere.

Using enterprise-level data from 21 transition economies, Clarke looks at factors that affect whether enterprises in these countries are connected to the Internet. He finds that foreign-owned enterprises are more likely to have Internet access than other enterprises and that employee-owned enterprises are less likely to have access.

Even after controlling for other factors that might affect Internet connectivity, the quality of a country's telecommunications infrastructure appears to have a significant effect on the likelihood that an enterprise in that country has Internet access.

Reducing corruption and taking other steps to improve the business environment would benefit domestic economies even if Internet access had little short-term impact on productivity or growth.

This paper—a product of Regulation and Competition Policy, Development Research Group—is part of a larger effort in the group to understand the impact of the Internet on economic performance. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Paulina Sintim-Aboagye, mail stop MC3-300, telephone 202-473-7644, fax 202-522-1155, email address psintimaboagye @worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The author may be contacted at gclarke@worldbank.org. (27 pages)

2630. Parallel Imports of Pharmaceutical Products in the European Union

Mattias Ganslandt and Keith E. Maskus
(July 2001)

Parallel imports are legitimately produced goods imported legally into a country without the authorization of a trademark, copyright, or patent holder. In the European Union, so long as a pharmaceutical manufacturer has placed a good on the market voluntarily, the principle of free movement of goods allows individuals or firms within the EU to trade goods across borders without the consent of the producer. What is the effect of these parallel imports?

The point of parallel imports of pharmaceuticals is arbitrage between countries with different prices. For several years, an important issue in the European Union has been the evident conflict between differing price regulations in the member states, on the one hand, and the consequences of parallel trade, on the other.

In the EU, so long as the manufacturer has placed the good on the market voluntarily, the principle of free movement of goods allows individuals or firms within the EU to trade goods across borders without the consent of the producer.

In this context, Ganslandt and Maskus study the effects of parallel trade in the pharmaceutical industry. They develop a model in which an original manufacturer competes in its home market with parallel-importing firms.

The two key hypotheses in their theoretical analysis are these: First, if the potential for parallel imports is unlimited, the manufacturer chooses deterrence and international prices converge. Second, with endogenously limited arbitrage, the manufacturing firm accommodates and the price in the home market falls as the volume of parallel trade rises.

The authors test their hypotheses on data from the Swedish market for 1995–98. Before 1995 Sweden prohibited parallel imports of pharmaceutical products, but entry into the European Union, on January 1, 1995, required Sweden to allow them.

Simple empirical tests favor the accommodation hypothesis with a time lag. Using data from Sweden, Ganslandt and Maskus find that the prices of drugs subject to competition from parallel imports increased less than those for other drugs between 1995 and 1998. Roughly three-fourths of this effect can be attributed to the lower prices of parallel imports and one-fourth to lower prices charged by the manufacturing firm.

Econometric analysis finds that rents to parallel importers (or resource costs in parallel trade) could be more than the gain to consumers from lower prices.

This paper is a product of Trade, Development Research Group. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Lili Tabada, room MC3-333, telephone 202-473-6896, fax 202-522-1159, email address ltabada @worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at mattias.ganslandt @iui.se or maskus@colorado.edu. (28 pages)

2631. Pension Reform in Hungary: A Preliminary Assessment

Roberto Rocha and Dimitri Vittas
(July 2001)

Hungary's pension reform package has been largely successful, significantly reducing imbalances in the pay-as-you-go system and the implicit pension debt while introducing a mandatory, funded, privately managed pillar that seems to be operating fairly well despite initial problems in the payment and registration systems and some regulatory weaknesses. Current shortcomings can be corrected by restoring the original 8 percent contribution rate to the second pillar and strengthening the regulatory and supervisory framework.

Hungary is entering the fourth year of a multi-pillar pension reform that has proved popular among workers despite initially lukewarm support from the government that succeeded the reforming government, and despite the poor initial performance of capital markets because of Russia's crisis in 1998. Roughly half the labor force joined the new system voluntarily. Most who switched were younger than 40.

Many people switched to the system because it offered more risk diversification. The pay-as-you-go (PAYG) system, which had been severely damaged by repeated manipulation of its parameters, clearly offered a low return on contributions. The new system is still predominantly PAYG. The first pillar accounts for more than two-thirds of the total contribution, but the new second pillar offers the chance of higher average returns on contributions.

Most workers probably intuited the risk and returns inherent in a pure PAYG system and mixed system, including the capital market risk in the second pillar and the political risk in the PAYG pillar. The new system offers better prospects of long-run risk-adjusted returns for young workers, and most young workers effectively opted for the new system. But the new system was probably oversold as well, making older workers—who would be better off staying in the reformed PAYG system—switch, too.

The government has so far decided not to increase the contribution to the second pillar from 6 to 8 percent, as originally planned, so efficiency gains in labor and capital markets may also be smaller than expected.

Addressing projected deficits in the PAYG system may require further adjustments, such as delaying the retirement age and shifting to indexed prices, reducing net benefits to future generations. Reform has sharply reduced the severe initial bias against future generations but hasn't eliminated it altogether.

The voluntary switching strategy achieves the same outcome as a forced switch based on an arbitrary cutoff age, while preventing legal problems and contributing to reduction of the implicit pension debt. But it leaves a few individuals worse off than if they'd chosen their best option—a problem a well-designed public information campaign can reduce.

This paper—a product of the Private and Financial Sectors Development Unit, Europe and Central Asia Region—is part of a larger effort to disseminate ongoing research on pension reform in the Central European region. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Lynn Gross, room H6-148, telephone 202-473-7030, fax 202-522-0005, email address lgross@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at rrocha@worldbank.org or dvittas @worldbank.org. (29 pages)

2632. Human Capital and Growth: The Recovered Role of Education Systems

Sébastien Dessus
(July 2001)

When investments in education in developing countries do not produce higher growth, the problem may be the quality of the schooling—of the education infrastructure, of the initial endowment in human capital, and of the system's ability to equitably distribute educational services. The consensus to support and emphasize public primary education for all (rather than secondary education for the few)—typically found in the most egalitarian societies—is most likely to increase the contribution of human capital accumulation to growth.

Recent empirical studies question conventional wisdom about the importance of education to growth. These results partly reflect how international differences in the quality of education systems—defined by the systems' ability to produce one marginal unit of productive human capital—are not taken into account.

Dessus estimates neoclassical growth models on panel data in which the elasticity of human capital depends stochastically on different characteristics of the education system. Among characteristics that explain differences in quality are education infrastructure, the initial endowment of human capital, and the ability to distribute educational services equally among potential students.

Giving priority to primary education for all rather than secondary education to a few is more likely to foster growth (for the same fiscal burden). But parallel actions are also probably needed—for example, promoting institutions that motivate skilled workers to spend time on growth-promoting activities and encouraging the inflow of foreign technologies to maximize the social return to public investment in education.

This paper—a product of the Social and Economic Development Group and Social Development Group, Middle East and North Africa Region—is part of a larger effort in the region to better understand the role that education has on human capital accumulation and growth. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Krisztina Mazo, room H10-102, telephone 202-473-9744, fax 202-477-0432, email address kmazo@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The author may be contacted at sdessus @worldbank.org. (21 pages)

2633. Bank Privatization in Argentina: A Model of Political Constraints and Differential Outcomes

George R. G. Clarke and Robert Cull
(July 2001)

In describing outcomes, the literature on privatization has paid little attention to politicians' incentives, perhaps because it lacked the kinds of evidence needed to do so. Evidence from the privatization of pro-

vincial Argentine banks in the 1990s indicates that transaction contract features vary systematically with proxies for politicians' incentives. Will variation in transaction features have implications for post-privatization performance?

Based on results from country case studies, many researchers have claimed that political constraints affect bank privatization transactions, which in turn affect the post-privatization performance of the banking sector. But no study has either econometrically tested how political constraints affect bank privatization transactions or theoretically modeled the privatization transaction.

Clarke and Cull present a simple theoretical framework that models the inherent tradeoffs faced by governments and potential buyers in privatization transactions involving banks. The potential buyer is concerned about the probability that the bank will remain solvent, about the profits it will earn after privatization, and about the price paid for the assets and liabilities. The government is concerned about the price received for the assets, about layoffs, and about service coverage after privatization.

The evidence from bank privatization transactions in Argentina in the 1990s supports several of their theoretical predictions. In particular, provinces with high fiscal deficits were willing to accept layoffs and to guarantee a larger part of the privatized bank's portfolio in return for a higher price.

The tequila crisis (Mexico's economic crisis in 1994–95) meant that politicians could protect fewer jobs and had to assume a greater share of their public banks' assets. Evidence of better performance at banks privatized after Mexico's crisis suggests that, by tying politicians' hands, the crisis may have brought unforeseen benefits.

This conjecture awaits further empirical validation, but Clarke and Cull hope that by explicitly incorporating the incentives politicians face, analysis can begin to address the question of why some privatizations succeed more than others.

This paper—a joint product of Regulation and Competition Policy and Finance, Development Research Group—is part of a larger effort in the group to understand the causes and consequences of bank privatization. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Paulina Sintim-Aboagye, room MC3-422, telephone 202-473-7644, fax 202-522-1155, email address psintimaboagye@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at gclarke @worldbank.org or rcull@worldbank. org. (32 pages)

2634. Chile's Regional Arrangements and the Free Trade Agreement of the Americas: The Importance of Market Access

Glenn W. Harrison, Thomas F. Rutherford, and David G. Tarr
(July 2001)

Among Chile's bilateral regional agreements, only Chile's agreements with "Northern" partners provide enough market access to offset the costs to Chile of trade diversion. Because of preferential market access, however, "additive regionalism" is likely to provide Chile with far more gains than the static welfare gains from unilateral free trade. At least one partner country loses from each of the regional trade agreements considered in this study, and excluded countries always lose. The Free Trade Agreement of the Americas (FTAA) produces gains for almost all the member countries, but the European Union is a big loser. Countries of the Americas gain more in aggregate from global free trade than from the FTAA.

Using a multisector, multicountry, computable general equilibrium model, Harrison, Rutherford, and Tarr examine Chile's strategy of negotiating bilateral free trade agreements with all of its significant trading partners (referring to this policy as *additive regionalism*). They also evaluate the Free Trade Agreement of the Americas (FTAA) and global free trade.

Among Chile's bilateral regional agreements, only Chile's agreements with "Northern" partners provide enough market access to offset the costs to Chile of trade diversion. Because of preferential market access, however, additive regionalism is likely to provide Chile with many times as many gains as the static welfare gains from unilateral free trade.

Harrison, Rutherford, and Tarr find that at least one partner country loses from each of the regional trade agreements they consider, and excluded countries as a group always lose.

They estimate that the FTAA produces large welfare gains for the members, with the European Union being the big loser.

Gains to the world from global free trade are estimated to be at least 36 times greater than gains from the FTAA. Even countries of the Americas in aggregate gain more from global free trade than from the FTAA.

This paper—a product of Trade, Development Research Group—is part of a larger effort in the group to examine the impact of regional trade arrangements on development and poverty reduction. Copies of the paper are available free from the World Bank, 1818 H Street, NW, Washington, DC 20433. Please contact Lili Tabada, room MC3-333, telephone 202-473-6896, fax 202-522-1159, email address ltabada@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. David Tarr may be contacted at dtarr @worldbank.org. (39 pages)

2635. Optimal Use of Carbon Sequestration in a Global Climate Change Strategy: Is there a Wooden Bridge to a Clean Energy Future?

Franck Lecocq and Kenneth Chomitz
(July 2001)

Does temporary sequestration of carbon dioxide have a place in a comprehensive policy for mitigating climate change? Does it "buy time" for technical change in the energy sector?

Carbon sequestration aims at raising the amount of carbon sequestered in biomass and in soils. Whether it should be part of a global climate mitigation strategy, however, remains controversial.

One of the key issues is that, contrary to emission abatement, carbon sequestration might not be permanent. But some argue that even temporary sequestration is beneficial as it delays climate change impacts and "buys" time for technical change in the energy sector.

To rigorously assess these arguments, Lecocq and Chomitz build an intertemporal optimization model in which both sequestration and abatement can be used to mitigate climate change.

They confirm that permanent sequestration, if feasible, can be an overall part of a climate mitigation strategy. When permanence can be guaranteed, sequestration is equivalent to fossil-fuel emissions abatement.

The optimal use of temporary sequestration, on the other hand, depends mostly on marginal damages of climate change. Temporary sequestration projects starting now, in particular, are not attractive if marginal damages of climate change at current concentration levels are assumed to be low.

This paper—a product of Infrastructure and Environment, Development Research Group—is part of a larger effort in the group to assess policies for mitigating climate change. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Viktor Soukhanov, room MC2-523, telephone 202-473-5721, fax 202-522-3230, email address vsoukhanov @worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at flecocq@worldbank.org or kchomitz@worldbank.org. (27 pages)

2636. Processes, Information, and Accounting Gaps in the Regulation of Argentina's Private Railways

Javier Campos-Méndez, Antonio Estache, and Lourdes Trujillo
(July 2001)

How do you set up a regulatory accounting system for a sector no longer under the government's direct control, after railways have been turned over to concessions in varied circumstances and where available information is provided mainly by private operators? As a result of inexperience in setting up concession agreements, the agreements did not clearly define the information needed for oversight and regulation.

Almost a decade after Argentina began privatizing its railways, resolution of the conflicts between regulators, users, and operators continues to take longer, and to be more difficult, than expected. Campos-Méndez, Estache, and Trujillo contend that many of these conflicts arose because there are no rules for interactions between the key stakeholders: government, regulators, users, unions, and the media.

One result of inexperience in setting up concession agreements has been that the agreements did not clearly define the information needed for oversight and regulation. Argentine rail concession contracts were supposed to be specific about the way tariffs, quality, investment, exclusivity, and so on, would change over time. And the newly created regulatory bodies were given some discretion about adjusting the contracts in the face of unforeseen developments.

However, initial privatizations were carried out in such a way that there was no time to refine terms, so many loopholes remained. Those unforeseen events have happened, and the regulatory agency, the CNRT, has had to adapt its procedures and decisions to available information. In some cases, alleged modifications of the operating environment have led to renegotiations. Changes have been introduced in the approach to furnishing information to the government for oversight and regulatory accounting. The changes center on clearer definitions in connection with four major issues:

- The harmonization and comparison of accounting data.
- The measurement of efficiency.
- Access prices.
- The financial model.

Circumstances in the Argentine rail industry early in 2001 did not favor dramatic changes, but current renegotiations could be used to adjust information requirements to reflect what has been learned through six years of experience.

This paper—a product of Governance, Regulation, and Finance Division, World Bank Institute—is part of a larger effort in the institute to promote best practice in the regulation of privatized infrastructure. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Gabriela Chenet-Smith, room J3-304, telephone 202-473-6370, fax 202-676-9874, email address gchenet@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. Antonio Estache may be contacted at aestache@worldbank.org. (45 pages)

2637. Technical Efficiency Gains from Port Reform: The Potential for Yardstick Competition in Mexico

Antonio Estache, Marianela González, and Lourdes Trujillo
(July 2001)

Relatively standard methodologies can help to measure the efficiency gains from reforming the organization of port infrastructure, and these measures can be used to promote competition between ports. But building the database needed to measure efficiency is a major undertaking for developing countries unaccustomed to such tasks.

Estache, González, and Trujillo show how relatively standard methodologies can help to measure the efficiency gains from reforming the organization of port infrastructure, how those measures can be used to promote competition between ports, and how competition can be built into an incentive-driven regulatory regime.

As illustration, they use a case study of port reform in Mexico in 1993, the first efficiency analysis of port restructuring in a developing country.

Their analysis, which covers 1996–99 and relies on a stochastic production frontier, shows that overall, Mexico has achieved annual efficiency gains of 6–8 percent in the use of port infrastructure since assigning its management to independent. decentralized operators.

Changes in relative performance ratings are revealing. They identify consistent sets of leaders and laggards, including some that would not have been identified by partial productivity indicators commonly used in the sector. The authors' main conclusions:

- Reforms have significantly improved average port performance.
- The analytically sound performance rankings allowed by the port-specific efficiency measures can help to promote yardstick competition in the sector. These rankings are superior to those that would emerge from use of partial productivity indicators. They account for the joint effects of all inputs on outputs—which is crucial, because it avoids the risk of inconsistent rankings based on different partial indicators, arbitrarily chosen.

Developing the database needed to measure efficiency in countries with no strong tradition of database development is an enormous task—especially in transport sectors, where the tradition of generating databases useful to policymakers is in its infancy. The most immediate effect of this exercise was to reveal the poverty of the database in the Mexican port sector and the need for regulators to invest in its development.

This paper—a product of Governance, Regulation, and Finance Division, World Bank Institute—is part of a larger effort in the institute to increase the understanding of infrastructure regulation. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Gabriela Chenet-Smith, mail stop J3-304, telephone 202-473-6370, fax 202-676-9874, email address gchenet@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. Antonio Estache may be contacted at aestache@worldbank.org. (20 pages)

2638. On Financing Global and International Public Goods

Todd Sandler
(July 2001)

Not all international public goods (IPGs) pose the same financial challenges. For some, encouraging adequate funding requires much ingenuity. For still other IPGs, incentives are consistent with the operation of markets or clubs; no official intervention is required as the IPGs are financed unofficially, with few transaction costs.

Three dimensions of public goods—nonrivalry of benefits, the possibility of being excluded from benefits, and the technology for aggregating public supply—determine what kinds of institutions and transnational actions are required for their provision and financing. For some public goods—especially those for which the exclusion of nonpayers is not feasible—these properties are such that a public sector push is needed or the good will not be financed. This push can come from a supranational structure (such as the World Bank, the United Nations, or the European Union) that directly or indirectly collects the requisite fees from its members to underwrite international public goods (IPGs).

To understand the role of international institutions in promoting IPGs, one must ascertain the nature of the good and whether it requires a push, a coax, or no assistance from a supranational structure or influential nation(s) and agents (such as charitable foundations).

The transnational community should explicitly direct scarce resources only to those global and international public goods that need either a significant push or only a smaller coax by the transnational community. When clubs or markets can finance international public goods, the community should sit back and let incentives guide the actions of sovereign nations.

This paper—a product of the Economic Policy and Prospects Group—is part of a larger effort in the group to analyze the financing requirements for international public goods. Copies of the paper are available free from the World Bank, 1818 H Street, NW, Washington, DC 20433. Please contact Sydnella Kpundeh, room MC2-332, telephone 202-473-9591, fax 202-522-2578, email address skpundeh@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The author may be contacted at tsandler@usc.edu. (49 pages)

2639. Public Policy toward Nongovernmental Organizations in Developing Countries

William Jack
(July 2001)

If a developing country government is not good at providing public services such as health care, education, and social protection, would NGOs be better at doing so? What advantages do NGOs have over for-profit providers of publicly funded services? And considering the importance of donor funding, which is better for delivering such services, an international NGO or a grassroots NGO?

Jack presents two descriptive models of nongovernmental organizations and poses normative questions about public policy toward NGOs. In situations in which optimal government intervention in a distorted or inequitable economy employs an NGO-like body, he considers which kinds of NGO might be used.

First, in many developing countries NGOs participate in the delivery of what are essentially private goods—in particular, health care and education. In an economy without NGOs, there may be good redistributive and efficiency reasons for the government to provide these goods in kind. But if direct government provision of such services is ineffective or inefficient, when is contracting out to an NGO-like institution preferable to using a traditional for-profit firm? (Another way to frame this is to ask: What is the optimal taxation and regulation of private providers of publicly financed services?)

NGOs also provide useful real and financial links with external donors. They are used to provide services the government favors and donors are willing to fund. In this model, the service provider is chosen to yield the best outcome for both government and donor.

In this context, Jack compares an international NGO and a grassroots organization.

It may be more efficient to transfer donor funds through an international NGO than through a local NGO, but when donor-government cooperation fails, a project implemented by an international NGO is effectively killed. If a project implemented by a local organization can limp along, this otherwise less efficient organization might be preferred.

This paper—a product of Public Service Delivery, Development Research Group—is part of a larger effort in the group to understand the role of NGOs in delivering basic public services. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Hedy Sladovich, mail stop MC2-204, telephone 202-473-7698, fax 202-522-1154, email address hsladovich@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The author may be contacted at wgj@georgetown.edu. (25 pages)

2640. Where Has All the Foreign Investment Gone in Russia?

Harry G. Broadman and Francesca Recanatini
(July 2001)

Not only does Russia have a poor record of attracting foreign direct investment (FDI) since the advent of reform in the early 1990s, but well over half of the investment it does attract goes to four regions in the western part of the country. Overcoming this skewed distribution of FDI—undoubt-

edly a factor in the country's uneven regional economic development—is essential for furthering Russia's growth and transition to a market economy. Factors associated with market size, infrastructure development, and the policy environment seem to explain much of the observed variation in FDI flows to regions in Russia.

Since its transition to a market economy began, Russia has not attracted much foreign direct investment (FDI). Inflows of FDI into Russia are much lower than those into other transition countries in the region, adjusted for population size and similar measures. Clearly, if Russia is to grow it must increase the *level* of FDI inflows, which is why a good deal of policy attention has focused on the problem.

Equally important for achieving sustainable growth in such a large, heterogeneous economy is learning how to make the *spatial distribution* of FDI *within* Russia more even. Inflows are strikingly skewed. Close to 60 percent of FDI goes to four regions in the western part of the country—Moscow City, Moscow oblast, St. Petersburg, and Leningrad oblast—which account for only 22 percent of Russia's gross national product and only 13 percent of Russia's population. Only two of the other 85 regions account for more than 2.5 percent of the country's FDI and most account for much less.

Surprisingly, neither policymakers nor observers and analysts have paid much attention to diagnosing the reason for this imbalance in FDI's distribution. Broadman and Recanatini try to empirically unbundle the determinants of FDI's regional distribution within Russia. They find that factors associated with market size, infrastructure development, and the policy environment seem to explain much of the observed variation in FDI flows to regions in Russia.

Moreover, the explanatory power of the model that best explains cross-regional variation in FDI flows from 1995 to 1998 changes significantly after the 1998 default and ruble devaluation—suggesting the possibility of a "structural change" in the determinants of FDI after the 1998 crisis.

This paper—a product of the Poverty Reduction and Economic Management Sector Unit, Europe and Central Asia Region—is part of a larger effort in the region to study structural reforms in the Russian Federation. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Sandra Craig, room H4-166, telephone 202-473-3160, fax 202-522-2753, email address scraig @worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at hbroadman @worldbank.org or frecanatini @worldbank.org. (29 pages)

2641. Is Russia Restructuring? New Evidence on Job Creation and Destruction

Harry G. Broadman and Francesca Recanatini
(July 2001)

A dynamic market—one that facilitates the creation of jobs in productive enterprises and the destruction of jobs in unproductive enterprises—is increasingly viewed as essential for countries making the transition from centrally planned to market systems. Russia's privatization initiatives have not adequately reduced the overmanning of firms that was typical under the socialist system and the reallocation of labor has been relatively limited. There has been only a modest decline in state enterprises' hiring rates, labor hoarding has been widespread, and the labor market has taken few and limited steps toward becoming more flexible and competitive.

Broadman and Recanatini explore the labor dynamics of Russian enterprise restructuring, empirically assessing how patterns of job creation and destruction are related to various aspects of enterprise restructuring across firms in different sectors and regions, and to different forms, sizes, vintages, and performance characteristics of ownership.

Evidence from case studies—based on more than 50 site visits in 2000—suggests that jobs have been destroyed, but only to a limited degree in some sectors and regions, largely because of institutional and incentive constraints and a still-widespread "socialist" corporate culture. Jobs have been created—particularly in sectors where devaluation had the most pronounced effect on import substitution and export promotion—but only slowly, mostly for lack of skilled workers and because regional mobility is limited. Labor turnover appears higher *within* regions than *across* regions.

Newly available data for 1996–99 (provided by Goskomstat) for about 128,000 enterprises in 24 industrial sectors in Russia's 89 regions indicates that the typical firm has experienced only modest downsizing—about 12 percent—in number of employees. Smaller firms have entered, and larger, mature businesses have exited some sectors. Except for a lull in 1998, the rate of job creation has steadily increased and the rate of job destruction has declined, dropping substantially in 1998–99. "Voluntary" worker separations remain the main—and growing—form of layoff, and the proportion of layoffs through redundancies is shrinking (now about 4 percent of total separations).

Firm size and net employment growth are not statistically related, but form of ownership seems to matter. Firm size is also statistically correlated (positively) with profitability, but restructuring through changes in net employment growth appears not to be. It seems Russian restructuring needs to become more efficient.

This paper—a product of the Poverty Reduction and Economic Management Sector Unit, Europe and Central Asia Region—is part of a larger effort in the region to study structural reforms in the Russian Federation. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Sandra Craig, room H4-166, telephone 202-473-3160, fax 202-522 2753, email address scraig @worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at hbroadman @worldbank.org or frecanatini @worldbank.org. (33 pages)

2642. Does the Exchange Rate Regime Affect Macroeconomic Performance? Evidence from Transition Economies

Ilker Domaç, Kyle Peters, and Yevgeny Yuzefovich
(July 2001)

The exchange rate regime does make a difference for inflation performance. It is difficult to infer its effect on growth, but policy variables—and other variables influencing economic activity—do have different effects on growth under different exchange-rate arrangements.

To examine whether a country's exchange rate regime has any impact on inflation and growth performance in transition economies, Domaç, Peters, and Yuzefovich develop an empirical framework that addresses some of the main problems plaguing empirical work in this strand of the literature: the *Lucas critique*, the *endogeneity of the exchange rate regime*, and the *sample selection problem*.

Empirical results demonstrate that the exchange rate regime *does* affect inflation performance. The results suggest that:

- Transition countries with intermediate arrangements might reduce inflation if they were to adopt a fixed regime.
- Switching from a floating regime to an intermediate regime might not reduce inflation.
- An *unanticipated float*—when a country whose fundamentals make it unlikely to adopt another regime *adopts* a floating regime—results in lower inflation.

Based on their results, it is not possible to infer more about one particular exchange rate regime being superior to another in terms of growth performance. But empirical findings do underscore the different effects that policy variables—and other variables influencing economic activity—have on growth under different exchange-rate arrangements.

This paper—a product of the Poverty Reduction and Economic Management Sector Unit, Europe and Central Asia Region—is part of a larger effort in the region to understand the links between exchange rate arrangements and macroeconomic performance in transition economies. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Armanda Carcani, room H4-326, telephone 202-473-0241, fax 202-522-2755, email address acarcani@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at idomac@worldbank.org or kpeters@worldbank.org. (65 pages)

2643. Dollarization and Semi-Dollarization in Ecuador

Paul Beckerman
(July 2001)

In January 2000 Ecuador announced that it would dollarize fully, in response to an unprecedented crisis encompassing recession, widespread bank failures, and incipient hyperinflation. The crisis had intensified since early 1998, when a combination of external and climatic shocks set it off. The economy's partial dollarization made the crisis far worse than it would otherwise have been. The move to full dollarization is perhaps best understood as a structural reform to end an unstable dual-currency system.

Over the 1980s and 1990s, GDP growth had stagnated because on account of oil export price volatility and natural disasters; the sacrifice of capital formation to heavy external public debt service; and incomplete, uneven structural reform. The exchange rate depreciation that proved continually necessary to sustain the net-export surplus and limit external debt accumulation induced Ecuadorians to dollarize spontaneously.

The 1998 shocks affected real economic activity—hence bank loan portfolios, and widened the fiscal and current account deficits. The external imbalance led to exchange rate depreciation. Dollar-denominated bank loans whose borrowers lacked dollar income increasingly turned non-performing. At the same time, the depreciation swelled the local currency value of dollar deposit liabilities. Many depositors, fearing that banks had become unsafe, withdrew, and over 1999 the Central Bank had to provide banks massive liquidity support. By year's end the resulting monetary issue led to the exchange rate collapse and incipient hyperinflation that forced the move to full dollarization.

Ecuador's Central Bank will continue operating, using its foreign exchange holdings to carry out limited liquidity management and lender-of-last-resort activities. Ecuador's public accounts and banking system remain vulnerable to commodity-price and natural shocks. Exchange rate adjustment and monetary expansion are no longer available, however, to manage the external accounts, accommodate the public deficit, or assist failing banks. Further structural reform remains essential to assure fiscal discipline and banking system safety.

This paper—a product of the Economic Policy Sector Unit, Latin America and the Caribbean Region—is part of a larger effort in the region to understand the sources of macroeconomic instability and the implications of currency board arrangements and dollarization. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Patricia Chacon Holt, Room I8-170, telephone 202-473-7707, email address pholt@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The author may also be contacted at pbeckerman@alum.mit.edu. (38 pages)

2644. Local Institutions, Poverty, and Household Welfare in Bolivia

Christiaan Grootaert and Deepa Narayan
(July 2001)

Social capital—including membership in an association such as an agrarian syndicate—reduces the probability of being poor in Bolivia. The returns to household investment in social capital are generally greater for the poor than for the rich, and greater for households with little land than for those with more land. Returns to such membership for Bolivia's poorest exceed returns to education and other assets.

Grootaert and Narayan empirically estimate the impact of social capital on household welfare in Bolivia – where they found 67 different types of local associations. They focus on household memberships in local associations as being especially relevant to daily decisions that affect household welfare and consumption.

On average, households belong to 1.4 groups and associations: 62 percent belong to agrarian syndicates, 16 percent to production groups, 13 percent to social service groups, and 10 percent to education and health groups. Smaller numbers belong to religious and government groups.

Agrarian syndicates, created by government decree in 1952, are now viewed mainly as community-initiated institutions to manage communal resources. They have been registered as legal entities to work closely with municipalities to represent the interests and priorities of local people in municipal decisionmaking.

The effects of social capital operate through (at least) three mechanisms: sharing of information among association members; the reduction of opportunistic behavior; and better collective decisionmaking. The effect of social capital on household welfare was found to be 2.5 times that of human capital. Increasing the average educational endowment of each adult in the household by one year (about a 25-percent increase) would increase per capita household spending 4.2 percent; a similar increase in the social capital endowment would increase spending 9 to 10.5 percent.

They measured social capital along six dimensions: density of memberships, internal heterogeneity of associations (by gender, age, education, religion, etc.), meeting attendance, active participation in decisionmaking, payment of dues (in cash and in kind), and community orientation. The strongest effect came from number of memberships. Active membership in an agrarian syndicate is associated with an average 11.5 percent increase in household spending. Membership in another local association is associated with a 5.3-percent higher spending level.

Empirical results partly confirm the hypothesis that social capital provides long-term benefits such as better access to credit and a higher level of trust in the community as a source of assistance in case of need.

This paper—a joint product of the Social Development Department and the Poverty Division, Poverty Reduction and Economic Management Network—is part of a larger effort in the Bank to understand better the role of local institutions, and social capital in general, for poverty reduction.. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Gracie Ochieng, room MC5-410, telephone 202-473-1123, fax 202-522-3247, email address gochieng@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at cgrootaert@worldbank.org or dnarayan @worldbank.org. (66 pages)

2645. Inequality Convergence

Martin Ravallion
(July 2001)

Is income inequality tending to fall in countries with high inequality and to rise in those where inequality is low? Is there a process of convergence toward medium-level inequality?

Comparing changes in inequality with initial levels, using new data, Ravallion finds that within-country inequality in income or per capita consumption is converging toward medium levels—a Gini index around 40 percent. The finding is robust to allow for serially independent measurement error in inequality data and for short-run dynamics around longer-term trends.

However, the convergence process is neither rapid nor certain, and more observations over time are needed to be confident of the pattern. Ravallion offers an approach to modeling the determinants of inequality that may be a starting point for estimating richer models.

This paper—a product of Poverty, Development Research Group—is part of a larger effort in the group to better understand what is happening to income inequality within developing countries. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Patricia Sader, room MC3-556, telephone 202-473-3902, fax 202-522-1153, email address psader@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The author may be contacted at mravallion @worldbank.org. (23 pages)

2646. Foreign Direct Investment and Integration into Global Production and Distribution Networks: The Case of Poland

Bartlomiej Kaminski and Beata K. Smarzynska
(July 2001)

Integration into the production and marketing arrangements of multinational corporations may offer many benefits to transition economies that, after a long period of isolation, have liberalized trade and investment. The fragmentation of production offers a unique opportunity for producers in developing countries to move from servicing small local markets to supplying large firms abroad and, indirectly, their customers all over the world.

Not until the end of the twentieth century, the "second globalization," has the ratio of trade to GDP been comparable to that during the first globalization, which took place at the end of the nineteenth century and was interrupted by World War I. Technological progress has increased the importance of the international division of labor and of global production and distribution networks. Multinational corporations have been a driving force behind these developments. As a transition economy, Poland provides an interesting case for study, as its sudden opening to foreign investment after a long period of isolation allows the process of integration into global networks to be studied more clearly.

Using Poland as a case study, Kaminski and Smarzynska study multinational corporations' role in integrating a host country into the increasingly international division of labor. They provide evidence that inflows of foreign direct investment are increasing Poland's participation in global production and distribution networks. They conclude that because of the large volume of foreign direct investment inflows expected in Poland in the near future, Poland's exports—driven by fragmented production—will continue to expand at even faster rates than observed there recently.

This paper—a product of Trade, Development Research Group—is part of a larger effort in the group to study the effects of foreign direct investment on economic activity. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Lili Tabada, room MC3-333, telephone 202-473-6896, fax 202-522-1159, email address ltabada@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at bkaminski@gvpt.umd.edu or bsmarzynska@worldbank.org. (27 pages)

2647. The Politics of Monetary Sector Cooperation among the Economic Community of West African States Members

Chibuike U. Uche
(July 2001)

Meaningful regional integration among West African states is critical if the Economic Community of West African States (ECOWAS) is ever going to be able to tackle civil wars, economic crises, and natural disasters in the region. France's support is essential for the development of a meaningful ECOWAS. Francophone West African countries face a choice between closer ties with France—which has provided development aid, ensured currency convertibility, and guaranteed monetary stability in these francophone countries—and closer *ties with Nigeria (which has done none of the above for itself, much less for its neighbors, and has a different agenda from France).*

Uche tries to explain why monetary cooperation and integration have been difficult to achieve among member states of the Economic Community of West African States (ECOWAS). He shows how different interest groups—both members and nonmembers—have over time influenced policies and positions on various ECOWAS member states.

Unfortunately, most negotiations for cooperation among ECOWAS member states have excluded France, the most powerful stakeholder. Moreover, the francophone member states have a much better monetary cooperation and integration program, mainly because of France's active support and participation in negotiations, mediation, and consensus building.

Unfortunately, Nigeria—which has been the main force behind bilingual regional integration in West Africa—has a different agenda from France. Its promotion of a bilingual economic grouping in West Africa was in part an attempt to reduce France's influence in West Africa, so France is unlikely to allow economic and monetary cooperation and integration along Nigerian lines. The fact that Nigeria is still a weak state does not help.

The choice for francophone West African countries is therefore between closer ties with France—which has provided development aid, ensured currency convertibility, and guaranteed monetary stability in these francophone countries—and closer ties with Nigeria (which has done none of the above for itself, much less for its neighbors).

The increasing convergence of macroeconomic indices among ECOWAS member countries—which is essential for monetary cooperation and integration—has come about largely because of events outside of ECOWAS or because of externally (International Monetary Fund) imposed structural adjustment programs.

France's support is essential for the development of a meaningful ECOWAS.

This paper—a product of the Robert S. McNamara Fellowships Program, World Bank Institute —is part of a larger effort in the Bank to contribute toward the development of knowledge and human capacity. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Abdul-Monem Al-Mashat, room J4-049, telephone 202-473-6414, fax 202-522-4036, email address aalmashat @worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The author may be contacted at chibuikeuche @hotmail.com. (40 pages)

2648. Methodologies to Measure the Gender Dimensions of Crime and Violence

Elizabeth Shrader
(July 2001)

The prevalence rate of violence—as measured by such indicators as domestic assault, homicide, and crime victimization—varies widely locally and worldwide, suggesting that violent behavior is modifiable and preventable. Developing standardized, accurate ways to measure and map violence across communities and countries is the first step toward developing programs to prevent it.

Recent studies have used homicide rates, police statistics, and crime victimization surveys to pinpoint violent areas. Shrader argues that these useful measures of crime and violence underestimate certain types of violence (especially noneconomic violence) and key dimensions of violence (especially age and gender).

A composite index based on monitoring and surveillance of homicides, crime statistics, and victimization surveys can provide invaluable "first round" snapshots of urban violence—information to monitor crime trends, warn against incipient crime waves, and indicate areas where more in-depth "second round" studies are needed to explore causality, the impact of interventions, and public opinion. But a composite index of municipally generated information about trends depends heavily on the quality of the data collected and will not explain *why* trends or changes occur. Other indicators are needed to strengthen surveillance and to facilitate the planning of interventions and evaluation.

It would be helpful, for example, to distinguish between social, economic, and political violence, and to provide items on autopsy reports, crime statistics, and victimization surveys to gain insight into what motivates violence. Information useful for analyzing causes of violence might include:

- *Individual:* Socioeconomic data about victims and perpetrators and information about their use of alcohol, drugs, or firearms.
- *Interpersonal*: Whether victim and perpetrator belonged to the same family or household, had an affective relationship, were acquaintances or were strangers.
- *Institutional:* Crime characteristics (physical injuries sustained, weapons used, value of property lost, where crime occurred); characteristics of victim and perpetrator; whether the crime was reported; per capita police and private security; presence of gangs in community; estimated number of gangs and gang members; level of gang organization (low, medium, high); and other measures of social capital.
- *Structural:* Levels of impunity (number of convictions as a ratio of number of arrests); levels of corruption; indices of social exclusion, such as racism, gender discrimination, or area stigma; the dynamics between violence and access to (and control of) such resources as land, water, and wealth.

Crime mapping, to provide visual confirmation of noted trends, might be combined with information about the relative locations of battered women's shelters, police stations, and the distribution of family violence in residential areas.

This paper—a product of the Gender Unit, Latin America and the Caribbean Region—is part of a larger effort to mainstream gender in the Bank's economic and social development programs. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Maria Correia, room I8-115, telephone 202-473-9394, fax 202-614-0994, email address mcorreia@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The author may be contacted through snyairo @worldbank.org. (39 pages)

2649. The Impact of the AIDS Epidemic on the Health of the Elderly in Tanzania

Martha Ainsworth and Julia Dayton
(July 2001)

The elderly in Tanzania suffer a temporary decline in physical well-being (body mass index) immediately after a prime-age adult *death. Among factors that could improve the physical well-being of the elderly: raising their incomes and assets, improving road infrastructure, and immunization and other campaigns to control epidemics of communicable diseases.*

By the end of 1999, an estimated 24.5 million Africans were living with HIV/AIDS, accounting for more than 70 percent of all global infections. In Tanzania an estimated 1.3 million people (of a total population of 33 million) were believed to be infected with HIV and 140,000 had already died of AIDS. One in every 12 adults is infected.

African couples have large families partly so there will be adult children to support parents in old age. Instead, because of the AIDS epidemic, the elderly are often caring for their infected children or orphaned grandchildren. Ainsworth and Dayton use longitudinal household data from Tanzania's Kagera region to measure the impact of prime-age adult mortality on the level and changes in physical well-being (as measured by body mass index, or BMI) of the elderly. They find that the elderly in nonpoor households have higher BMI. Nonpoor households are more likely to have an adult death and the elderly in these households are more likely to suffer declining BMI in the months before the death of a prime-age adult. The elderly in both poor and nonpoor households experience a significant drop in BMI after an adult death, but BMI recovers over time and there is no long-run association with BMI levels and recent adult deaths.

The elderly hit hardest are those in households not receiving private transfers. Private transfers received by other household members raise the BMI of the elderly, especially after a recent adult death. There is no evidence that nongovernmental organization or public assistance to the household affects short-run changes in BMI. The elderly who have more living children are physically better off, but short-run increases in the number of teenagers in the household are associated with declines in BMI.

Improving the incomes and assets of the poor is key to improving the overall BMI of the elderly. The elderly who have more assets (such as better quality dwellings) tend to have higher BMI. Controlling for individual and household characteristics, the elderly in communities with roads that are navigable year-round have substantially higher BMI. Prevention of communicable disease is key to reducing short-run fluctuations in BMI—through preventing HIV and community immunization programs that benefit the elderly.

This paper—a product of Public Service Delivery, Development Research Group—is part of a larger research project on "The Economic Impact of Fatal Adult Illness due to AIDS and Other Causes in Sub-Saharan Africa" (RPO 675-71). The field research on which the study is based was funded by the Bank's Research Support Budget, USAID, and DANIDA.This study was supported by a grant from UNAIDS. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Hedy Sladovich, room MC3-607, telephone 202-473-7698, fax 202-522-1153, email address hsladovich@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at mainsworth@worldbank.org or julia.dayton@yale.edu. (23 pages)

2650. Sources of China's Economic Growth, 1952–99: Incorporating Human Capital Accumulation

Yan Wang and Yudong Yao
(July 2001)

Both productivity growth and factor accumulation figured significantly in China's remarkable growth performance between 1978 and 1999, a period of reform. Considering China's need for an innovation-based knowledge economy, the recent declining rate of human capital accumulation—education—is a cause for concern.

China's performance in economic growth and poverty reduction has been remarkable. There is an ongoing debate about whether this growth is mainly driven by productivity or factor accumulation. But few past studies had incorporated information on China's human capital stock, and thus contained an omission bias.

Wang and Yao construct a measure of China's human capital stock from 1952 to 1999 and, using a simple growth accounting exercise, incorporate it in their analysis of the sources of growth during the pre-reform (1952–77) and the reform period (1978–99).

They find that the accumulation of human capital in China (as measured by the average years of schooling for the population aged 15 to 64) was quite rapid and contributed significantly to growth and welfare.

After incorporating human capital, they also find that the growth of total factor productivity still plays a positive and significant role during the reform period. In contrast, productivity growth was negative in the pre-reform period. The results are robust to changes in labor shares in GDP.

The recent declining rate of human capital accumulation is a cause for concern, if China is to sustain its improvements in growth and welfare in the coming decade. Funding for basic education is unevenly distributed and insufficient in some poor regions.

This paper—a product of the Economic Policy and Poverty Reduction Division, World Bank Institute—is part of a larger effort in the institute to examine country experience on globalization and growth. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Agnes Datoloum, room J4-259, telephone 202-473-6334, fax 202-676-9810, email address adatoloum@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at ywang2@worldbank.org or yyao@imf.org. (24 pages)

2651. China's Growth and Poverty Reduction: Trends between 1990 and 1999

Shaohua Chen and Yan Wang
(July 2001)

During the 1990s, China's poverty declined significantly across a wide range of poverty lines. China's poor have benefited much less from economic growth than the rich. Education is positively and significantly related to growth and poverty reduction—but the regional disparities of education are widening. Education must be more equitably distributed if China is to attack poverty and inequality.

Chen and Wang investigate recent trends in poverty and inequality in China, decomposing data on poverty reduction to see who has benefited most from China's economic growth. They find that, by several measures, poverty declined significantly in the 1990s, across a wide range of poverty lines, except that a slight slowdown in China's export and economic growth in 1997–99 might have hurt the poor. There was a slight increase in the poverty headcount between 1997 and 1999, using lower poverty lines, and a worsening of the poverty gap index. Average per capita consumption declined for farmers, especially those living in poor regions such as Gans, Heilongjiang, Shanxi, and Xinjiang. It is unclear whether this decline was attributable to Asia's economic crisis.

Economic growth contributed significantly to poverty reduction, but rising inequality worsened both rural and urban income distributions—except during the Asian crisis when the distribution remained relatively stable.

The poor benefited far less than the rich from economic growth. Income growth reached or exceeded the average growth rate only for the richest 20 percent of the population.

Chen and Wang then examine the relationship between human capital, growth, and poverty. They find that the accumulation of human capital had slowed and that there is a huge regional disparity in human capital stock. And the distribution of education is becoming increasingly skewed. China must address this problem if it is to succeed in attacking poverty and inequality.

This paper—a joint product of Poverty, Development Research Group, and the Economic Policy and Poverty Reduction Division, World Bank Institute—was presented at a WBI-PIDS seminar, "Strengthening Poverty Data Collection and Analysis," Manila, April 30–May 4, 2001. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Agnes Datoloum, room J4-259, telephone 202-473-6334, fax 202-676-9810, email address adatoloum@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at schen@worldbank.org or ywang2@worldbank.org. (24 pages)

2652. Demand for World Bank Lending

Dilip Ratha
(July 2001)

IBRD and IDA lending commitments appear to reflect variations in borrowing countries' need for external financing to meet debt service commitments. This is true during both financial crises and more tranquil times, suggesting that aid may be more fungible than previously believed.

Bridging the external financing gap has been an important factor in borrowing government's demand for World Bank loans. The demand for IBRD and IDA lending is positively related to an increase in debt service payments and inversely related to a borrowing country's level of reserves.

These two variables explain a large part of the variation in IBRD and IDA lending commitments, not only since the Asian crisis but also during tranquil times over the past two decades. Borrowing to service debt during a crisis is consistent with the Bank's role as a lender of last resort as well as with its core development objectives, but such borrowing during tranquil times may conflict with the Bank's long term objective of reducing poverty.

That investment lending commitments are related to debt service payments implies that aid may be more fungible than previously believed. If Bank lending is fungible and there is no guarantee that a particular Bank loan is financing an identified investment project or program, a case could be made for greater use of programmatic lending (with well-defined conditionality). As developing countries become larger and more integrated with volatile international capital markets, there is also likely to be a greater need for fast-disbursing, contingent program lending facilities from the Bank.

This paper—a product of the Economic Policy and Prospects Group—is part of a larger effort in the group to understand the determinants of official flows to developing countries. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Sarah Crow, room MC2-358, telephone 202-473-0763, fax 202-522-2578, email address scrow@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The author may be contacted at dratha@worldbank.org. (27 pages)

2653. The Impact of Farm Credit in Pakistan

Shahidur R. Khandker and Rashidur R. Faruqee
(August 2001)

The Agricultural Development Bank of Pakistan (ADBP), which provides most formal loans in Pakistan's rural areas, lends to largeholders far more than to smallholders, although the impact of credit is greater for the smallholders. Targeting credit to smallholders would make ADBP's credit scheme more cost-effective. To reach poor farmers and farmers without assets—in other words, to reduce poverty—stringent collateral requirements should be relaxed and outreach should be broadened.

Both formal and informal loans matter in agriculture. But formal lenders provide much more in production lending than do informal lenders, often at a higher cost than what they can recover. The Agricultural Development Bank of Pakistan (ADBP), for example, providing about 90 percent of formal loans in rural areas, incurs high costs on loan defaults. Like other governments, the Government of Pakistan subsidized the formal scheme on the grounds that lending to agriculture is a high-risk activity because of covariate risk.

Because farm credit schemes are subsidized, policymakers must know if these schemes are worth supporting. Using recent data from a large household survey from rural Pakistan, Khandker and Faruqee estimate the cost-effectiveness of the ADBP loans. To estimate credit's impact, they use a two-stage method, which takes into account the endogeneity of borrowing.

Clearly, formal lenders are biased toward larger farmers with collateral. Large landowners, who tend to represent only 4 percent of rural households, get 42 percent of formal loans. Landless and subsistence farmers, who represent more than 69 percent of rural households, receive only 23 percent of formal loans.

ADBP loans improve household welfare but, although large farmers receive most of the ADBP finance, the impact of credit is greater for small farmers than for large farmers. Large landowners use formal loans unproductively.

Because the ADBP scheme is subsidized, it is not cost-effective for delivering rural credit. It would be more cost effective if small farmers were better targeted instead.

This paper—a product of Rural Development, Development Research Group—is part of a larger effort in the group to understand the cost-effectiveness of alternative credit delivery systems and their impact on rural poverty. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Pauline Kokila, room MC3-510, telephone 202-473-3716, fax 202-522-1151, email address pkokila @worldbank.org. Policy Research Working Papers are also posted on the Web at http:/ /econ.worldbank.org. The authors may be contacted at skhandker@worldbank.org or rfaruqee@worldbank.org. (32 pages)

2654. Thirst for Reform? Private Sector Participation in Providing Mexico City's Water Supply

Luke Haggarty, Penelope Brook, and Ana Maria Zuluaga
(August 2001)

In the early 1990s Mexico City's Federal District (the D.F.) initiated a series of service contracts with four operators in the private sector—each to be implemented in three stages over ten years. The idea was to introduce competitive pressures and to find out if a "gradualist" approach would reduce social and political opposition to private sector involvement and would allow the government to address pricing problems and strengthen regulatory arrangements.

The case in Mexico City offered an opportunity to observe the advantages and disadvantages of gradualist reform. Unfortunately Haggarty, Brook, and Zuluaga find that the long-term nature of an incremental approach does not match well with the generally shorter-term horizons of elected politicians. Difficult decisions in implementation are left to later years, which pushes potentially unpopular actions onto the shoulders of future administrations, while allowing the current government to claim credit for instituting reform.

The reform planned—and implemented—was not designed to tackle the city's most serious water problems, including overconsumption and waste. And reform did little to change residential consumers' incentives to conserve water.

Overexploitation of the aquifer has been a problem since at least the 1930s. Mexico City is built on a series of drained lakebeds, and the land is soft and prone to settling, or subsiding, as the aquifer is depleted. Several areas of the city center have sunk by over two meters in the past decade alone. And by virtue of its location and elevation, the city's alternative water sources are expensive. The need for change is stark, but the power to undertake reform to tackle broad problems of resource management in the city and surrounding areas lies outside the jurisdiction of the D.F. with the federal government. Such external funding of major supply projects weakens the incentives for conservation. Reform reduced the increasing rate of overexploitation of the aquifer, but partly by simply failing to meet demand.

Reform to provide more equitable and sustainable water delivery must focus on improving the efficiency of operations, on substantially reforming the way water resources are priced and allocated, and on the design, management, and pricing of wastewater services. Federal subsidies for new production must be reduced, prices for system operators and consumers must rise, and more must be invested in the treatment and storage of wastewater—all of which requires strong political leadership.

This paper—a product of Regulation and Competition Policy, Development Research Group—is part of a larger effort in the group to analyze institutional issues in regulated infrastructure. The study was funded by the Bank's Research Support Budget under the research project "Institutions, Politics, and Contracts: Private Sector Participation in Urban Water Supply" (RPO 681-87). Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Paulina Sintim-Aboagye, room MC3-422, telephone 202-473-7644, fax 202-522-1155, email address psintimaboagye@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at lhaggarty@worldbank.org or pbrook @worldbank.org. (69 pages)

2655. Measuring Services Trade Liberalization and its Impact on Economic Growth: An Illustration

Aaditya Mattoo, Randeep Rathindran, and Arvind Subramanian
(August 2001)

Countries that fully liberalize their telecommunications and financial services sectors may be able to expect economic growth rates up to 1.5 percentage points higher than rates in other countries.

Mattoo, Rathindran, and Subramanian explain how the output growth effect from liberalizing the service sectors differs from the effect from liberalizing trade in goods.

They also suggest using a policy-based rather than outcome-based measure of the openness of a country's services regime. They construct such openness measures for two key service sectors' basic telecommunications and financial services.

Finally, the authors provide some econometric evidence—relatively strong for the financial sector and less strong, but nevertheless statistically significant, for the telecommunications sector—that openness in services influences long-run growth performance. Their estimates suggest that growth rates in countries with fully open telecommunications and financial services sectors are up to 1.5 percentage points higher than those in other countries.

This paper—a product of Trade, Development Research Group—is part of a larger effort in the group to assess the implications of liberalizing trade in services. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Lili Tabada, room MC3-333, telephone 202-473-6896, fax 202-522-1159, email address ltabada@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ. worldbank.org. The authors may be contacted at amattoo@worldbank.org, randeep @wam.umd.edu, or asubramanian@imf. org. (35 pages)

2656. The Ability of Banks to Lend to Informationally Opaque Small Businesses

Allen N. Berger, Leora F. Klapper, and Gregory F. Udell
(August 2001)

Large and foreign-owned institutions may have difficulty extending relationship loans to informationally opaque small firms. Bank distress does not appear to affect small business lending, although even small firms may react to bank distress by borrowing from multiple banks.

Consolidation of the banking industry is shifting assets into larger institutions that often operate in many nations. Large international financial institutions are geared toward serving large wholesale customers. How does this affect the banking system's ability to lend to informationally opaque small businesses?

Berger, Klapper, and Udell test hypotheses about the effects of bank size, foreign ownership, and distress on lending to informationally opaque small firms, using a rich new data set on Argentinean banks, firms, and loans. They also test hypotheses about borrowing from a single bank versus borrowing from several banks.

Their results suggest that large and foreign-owned institutions may have difficulty extending relationship loans to opaque small firms, especially if small businesses are delinquent in repaying their loans.

Bank distress resulting from lax prudential supervision and regulation appears to have no greater effect on small borrowers than on large borrowers, although even small firms may react to bank distress by borrowing from multiple banks, despite raising borrowing costs and destroying some of the benefits of exclusive lending relationships.

This paper—a product of Finance, Development Research Group—is part of a larger effort in the group to study small and medium size firm financing. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Agnes Yaptenco, room MC3-446, telephone 202-473-1823, fax 202-522-1155, email address ayaptenco@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at aberger@frb.gov, lklapper@worldbank.org, or gudell@indiana.edu. (46 pages)

2657. Middle-Income Countries: Development Challenges and Growing Global Role

Peter Fallon, Vivian Hon, Zia Qureshi, and Dilip Ratha
(August 2001)

Some observers have questioned the rationale for continued engagement by international development institutions in middle-income countries. But these countries face development challenges calling for continued partnership with the international development community. Moreover, partnership with these countries is increasingly important in global collective action.

There has been much debate recently about the role of international development institutions such as the World Bank in middle-income countries. Some observers have suggested that middle-income countries have reached a stage in their economic development that calls into question the rationale for development institutions' continued engagement in these countries. But Fallon, Hon, Qureshi, and Ratha find that middle-income countries continue to face significant development challenges. The nature of these challenges varies substantially, but all of these countries face an agenda calling for continued partnership with the international development community.

Middle-income countries still have high levels of poverty. They are home to more than three-quarters of the world's poor (those living on less than US$2 a day). Poverty is pervasive in some middle-income countries, while in others the problem is one of major concentrations of poverty in backward areas. And recent crises have revealed the fragility of some of the gains against poverty in these countries.

On the policy front, some countries have made great strides in reform, but many lag considerably behind, and even among the advanced reformers the unfinished policy agenda is substantial. The countries' institutional capacity to manage reform varies greatly. So does their integration with the global economy. Many middle-income countries still have little access to international capital markets, and even those with better access must contend with volatility in private capital flows.

Beyond the need to assist middle-income countries in addressing these challenges, the case for continued engagement by international development institutions derives from the increasing importance of these countries for a range of global public goods. With their growing role and integration in the global economy, partnership with middle-income countries is a key element of global collective action in such areas as reducing global poverty, maintaining international financial stability, improving global economic governance, protecting the global environmental commons, and fighting systemic health threats.

This paper—a product of the Economic Policy Unit, Poverty Reduction and Economic Management Network; and the Development Prospects Group—is part of a larger effort in the Bank to analyze the evolving development agenda in the middle-income countries and its implications for the Bank's role. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Debbie Fischer, mail stop MC4-406, telephone 202-473-8656, fax 202-522-2530, email address dfischer@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at pfallon@worldbank.org, vhon@worldbank.org, mqureshi@worldbank.org, or dratha@worldbank.org. (26 pages)

2658. How Comparable are Labor Demand Elasticities across Countries?

Pablo Fajnzylber and William F. Maloney
(August 2001)

Even accounting for the large variance induced by different estimation techniques, one probably cannot say much about the flexibility of different labor markets based on comparisons of the estimated elasticity of demand. Colombia, for example, which has severe restrictions on firing workers, has much higher long-run wage elasticities than Chile, which has no such restrictions.

Fajnzylber and Maloney present the first comparable dynamic panel estimates of labor demand elasticities, using data from Chile, Colombia, and Mexico. They examine the benefits and limits of the Arrellano and Bond GMM in differences estimator and the Blundell and Bond GMM system estimator. They also explore the limitations of such measures for diagnosing flexibility in the labor market.

Even accounting for the large variance induced by different estimation techniques, one probably cannot say much about the flexibility of different labor markets based on comparisons of the estimated elasticity of demand. Colombia, for example, which has severe restrictions on firing workers, has much higher long-run wage elasticities than Chile, which has no such restrictions.

Three factors make such comparisons difficult:

- Elasticities differ greatly across industries, so the composition of industry in each country probably affects the aggregate elasticity. Estimates are extremely dependent on the estimation approach and specification.

• Even for specific industries, the elasticity of labor demand differs greatly across countries. And Fajnzylber and Maloney find no common pattern of country rankings across industries, which suggests that those differences cannot be attributed solely to systematic characteristics of the countries' labor markets.

• Estimates for Chile over 15 years suggest substantial and significant variations in elasticity over time. So comparisons across countries depend not only on the industries involved but also on the sample periods of time used. Estimates change greatly, if not secularly, with sample period.

This paper—a product of the Poverty Reduction and Economic Management Sector Unit, Latin America and the Caribbean Region—is part of a larger effort in the region to understand the functioning of developing country labor markets. Copies of the paper are available free from the World Bank, 1818 H Street, NW, Washington, DC 20433. Please contact Anne Pillay, room I8-104, telephone 202-458-8046, fax 202-522-2119, email address apillay@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at pablo @cedeplov.ufmg.br or wmaloney @worldbank.org. (36 pages)

2659. Firm Entry and Exit, Labor Demand, and Trade Reform: Evidence from Chile and Colombia

Pablo Fajnzylber, William F. Maloney, and Eduardo Ribeiro
(August 2001)

Firms entering and exiting a market contribute almost as much to employment changes as firms continuing in a market. As much effort should be made to understanding sensitivity to wage changes in entering and exiting firms as to understanding wage elasticities in continuing firms.

There are increasing fears that trade reform—and globalization generally—will increase the uncertainty the average (especially less skilled) worker faces. If product markets become more competitive and the access to foreign inputs is increased, will demand for workers among existing firms become more elastic? Will labor markets become more volatile because bad shocks to output will translate into greater impacts on wages and employment?

So far the literature on this question has focused almost entirely on labor demand within *continuing* firms. But much of the movement in the job market arises from the entry and exit of firms.

Fajnzylber, Maloney, and Ribeiro show that firms entering and exiting a market contribute almost as much to employment changes as firms continuing in a market. In several samples, firms entering and exiting affected the net change in positions more than the expansion of continuing plants did, although contributions varied greatly across the business cycle and period of adjustment.

Estimates of labor demand elasticities of entering and exiting firms were surprisingly similar in Chile and Colombia and somewhat higher than elasticities for firms that survived.

Estimates of the effect of trade liberalization offer only ambiguous lessons on trade reform's probable impact on these elasticities. The data suggest that in Chile greater exchange rate protection does reduce the wage-employment elasticitiy of entering and exiting plants, but the opposite effect is found for continuing plants. And the results are reversed in Colombia's case.

Moreover, in Colombia higher import penetration lowers the elasticity of labor demand and in Chile higher tariffs increase it.

These findings, combined with very ambiguous results from probit regressions on the determinants of plant exit, suggest that circumspection is warranted in asserting that trade liberalization will increase the wage elasticity of labor demand.

This paper—a product of the Poverty Sector Unit, Latin America and the Caribbean Region—is part of a larger effort in the region to study the impact of liberalization on labor market risk. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Anne Pillay, room I8-104, telephone 202-458-8046, fax 202-522-2119, email address apillay@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at pablo@cedeplov.ufmg.br or wmaloney@worldbank.org. (32 pages)

2660. Short and Long-Run Integration: Do Capital Controls Matter?

Graciela Kaminsky and Sergio Schmukler
(August 2001)

Do controls on capital flows persistently isolate domestic markets from international markets? Or is the insulation they provide just ephemeral?

Kaminsky and Schmukler study whether capital controls affect the link between domestic and foreign stock market prices and interest rates. To examine the characteristics of international market integration and the effects of capital controls in the short and long run, they apply band-pass filter techniques to data from six emerging economies during the 1990s.

They find that markets seem to be linked more at longer horizons. Equity prices seem to be more connected internationally than interest rates.

They also find little evidence that controls effectively segment domestic markets from foreign markets. And when they do, the effects seem to be short-lived.

Moreover, the effects of controls on outflows do not seem to differ from those of controls on inflows. For example, controls on outflows in Venezuela during the 1994 crisis, and unremunerated reserve requirements in Chile and Colombia during a capital-inflow episode, seem to have shielded domestic markets at the most at very high frequencies.

The degree of financial sophistication does not seem to affect Kaminsky and Schmukler's conclusions on the insulation provided by capital controls. True, more developed financial markets, such as those in Brazil, are more closely linked to international markets than those in Colombia and Venezuela, which are far more illiquid. But capital controls do not seem to provide an extra cushion against international spillovers even in less developed markets.

This paper—a product of Macroeconomics and Growth, Development Research Group—is part of a larger effort in the group to understand the functioning of financial markets and the benefits of financial integration. The study was funded by the Bank's Research Support Budget under the research project "Financial Development and Contagion." Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC

20433. Please contact Emily Khine, room MC3-347, telephone 202-473-7471, fax 202-522-3518, email address kkhine @worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at graciela@gwu.edu or sschmukler@worldbank.org. (45 pages)

2661. The Regulation of Entry

Simeon Djankov, Rafael La Porta, Florencio Lopez de Silanes, and Andrei Shleifer
(August 2001)

New data show that countries that regulate the entry of new firms more heavily have greater corruption and larger unofficial economies, but not better quality goods. The evidence supports the view that regulating entry benefits politicians and bureaucrats.

Djankov and his coauthors present new data on the regulation of the entry of start-up firms in 85 countries. The data cover the number of procedures, official time, and official costs that a start-up firm must bear before it can operate legally. The official costs of entry are extremely high in most countries.

Countries that regulate entry more heavily have greater corruption and larger unofficial economies, but not better quality goods (public or private). Countries with more democratic and limited governments regulate entry more lightly. The evidence is inconsistent with public interest theories of regulation, but supports the public choice view that regulating entry benefits politicians and bureaucrats.

This paper—a product of the Financial Sector Strategy and Policy Department—is part of a larger effort in the department to educate policymakers on the costs of regulation. The study was funded by the Bank's Research Support Budget under the research project "The Regulation of Small Businesses." Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Rose Vo, mail stop MC9-903, telephone 202-473-3722, fax 202-522-2031, email address hvo1 @worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. Simeon Djankov may be contacted at sdjankov @worldbank.org. (48 pages)

2662. Markups, Entry Regulation, and Trade: Does Country Size Matter?

Bernard Hoekman, Hiau Looi Kee, and Marcelo Olarreaga
(August 2001)

Country size matters in determining the effectiveness of domestic and foreign competition on pricing behavior in manufacturing. Removing barriers to the entry of new firms reduces markups more in large countries, while removing barriers to imports reduces markups more in small countries.

Actual and potential competition is a powerful source of discipline on the pricing behavior of firms with market power. Hoekman, Kee, and Olarreaga develop a simple model that shows that the effects of new entry and import competition on industry price-cost markups depend on country size.

The authors predicted that barriers to domestic entry would have a stronger anti-competitive effect in large countries, while barriers to foreign entry (imports) would have a stronger effect in small countries. After estimating markups for manufacturing sectors in 41 industrial and developing countries, they test these hypotheses and find that the hypotheses cannot be rejected by the data. For example, although Indonesia and Italy impose the same number of regulations on the entry of new firms, the effect of the regulations on manufacturing markups is 20 percent greater in Italy because of its larger size. Similarly, while Chile and Zimbabwe have the same import penetration ratio, the market discipline effect of imports is 13 percent greater in Zimbabwe because of its smaller size.

This paper—a product of Trade, Development Research Group—is part of a larger effort in the department to understand the links between trade and competition policy. It was prepared as a background paper for the World Bank's *World Development Report 2002: Building Institutions for Markets.* Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Lili Tabada, mail stop MC3-333, telephone 202-473-6896, fax 202-522-1159, email address ltabada@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org.The authors may be contacted at bhoekman @worldbank.org, hlkee@worldbank.org, or molarreaga@worldbank.org. (37 pages)

2663. Agglomeration Economies and Productivity in Indian Industry

Somik Lall, Zmarak Shalizi, and Uwe Deichmann
(August 2001)

The benefits to Indian manufacturing firms of locating in dense urban areas do not appear to offset the associated costs. Improving the quality and availability of transport infrastructure linking smaller urban areas to the rest of the interregional network would improve manufacturing plants' access to markets and would give standardized manufacturing activities a chance to move out of large, costly urban centers to lower cost secondary centers.

"New" economic geography theory and the development of innovative methods of analysis have renewed interest in the location and spatial concentration of economic activities. Lall, Shalizi, and Deichmann examine the extent to which agglomeration economies contribute to economic productivity. They distinguish three sources of agglomeration economies:

- At the firm level, from improved access to market centers.
- At the industry level, from enhanced intra-industry linkages.
- At the regional level, from inter-industry urbanization economies.

The input demand framework they use in analysis permits the production function to be estimated jointly with a set of cost shares and makes allowances for nonconstant returns to scale and for agglomeration economies to be factor-augmenting. They use firm-level data for standardized manufacturing in India, together with spatially detailed physio-geographic information that considers the availability and quality of transport networks linking urban centers—thereby accounting for heterogeneity in the density of transport networks between different parts of the country.

The sources and magnitudes of agglomeration vary considerably between industrial sectors. Their results indicate that access to markets through improvements in interregional infrastructure is an important determinant of firm-level productivity, whereas the benefits of locating in dense urban areas do not appear to offset the associated costs.

Improving the quality and availability of transport infrastructure linking smaller urban areas to the rest of the interregional network would improve market access for manufacturing plants. It would also give standardized manufacturing activities a chance to move out of large, costly urban centers to lower cost secondary centers.

This paper—a product of Infrastructure and Environment, Development Research Group—is part of a larger effort in the group to understand the role of economic geography and urbanization in the development process. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Roula Yazigi, room MC2-622, telephone 202-473-7176, fax 202-522-3230, email address ryazigi@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at slall1@worldbank.org, zshalizi@worldbank.org, or udeichmann@worldbank.org. (34 pages)

2664. Does Piped Water Reduce Diarrhea for Children in Rural India?

Jyotsna Jalan and Martin Ravallion
(August 2001)

Children's health improves on average as a result of policy interventions that expand access to piped water. However, the gains largely bypass children in poor and poorly educated families.

The effects of public investments aimed at directly improving children's health are theoretically ambiguous, since the outcomes also depend on indirect effects through parental inputs. Jalan and Ravallion investigate the role of such inputs in influencing the incidence of child health gains from access to piped water in rural India.

Using propensity score matching methods, they find that the prevalence and duration of diarrhea among children under five are significantly less on average for families with piped water than for families without it. But health gains largely bypass children in poor families, particularly when the mother is poorly educated. The authors' findings point to the importance of combining infrastructure investments with effective public action to promote health knowledge and income poverty reduction.

This paper—a product of Poverty, Development Research Group—is part of a larger effort in the group to better measure and understand the welfare impacts of development projects. The study was funded by the Bank's Research Support Budget under the research project "Policies for Poor Areas" (RPO 681-39). Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Catalina Cunanan, room MC3-542, telephone 202-473-2301, fax 202-522-1151, email address ccunanan@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at jjalan@worldbank.org or mravallion@worldbank.org. (30 pages)

2665. Measuring Aggregate Welfare in Developing Countries: How Well Do National Accounts and Surveys Agree?

Martin Ravallion
(August 2001)

The two sources of data on aggregate economic welfare—household surveys and national accounts—can yield different results. How large is this divergence? How is it changing over time? And how does it vary by region?

In a data set for developing and transition economies, Ravallion finds that private consumption per capita based on national accounts deviates on average from mean household income or expenditure based on national sample surveys. Growth rates also differ systematically, so that the ratio of the survey mean to the national accounts mean tends to fall over time. But there are revealing exceptions to these general findings. The aggregate difference in the levels is due more to income surveys than to expenditure surveys. And there are strong regional effects; for example, the severe data problems in the transition economies of Eastern Europe and Central Asia mean that there is negligible correlation in that region between growth rates from national accounts and those from household surveys.

This paper—a product of Poverty, Development Research Group—is part of a larger effort in the group to investigate the strengths and weaknesses of currently used measures of economic welfare. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Catalina Cunanan, room MC3-542, telephone 202-473-2301, fax 202-522-1151, email address ccunanan@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The author may be contacted at mravallion@worldbank.org). (25 pages)

2666. Measuring Pro-Poor Growth

Martin Ravallion and Shaohua Chen
(August 2001)

New tools allow one to study the incidence of economic growth by initial level of income, and to measure the rate of pro-poor growth in an economy. An application is provided using data for China in the 1990s.

It is important to know how aggregate economic growth or contraction was distributed according to initial levels of living. In particular, to what extent can it be said that growth was "pro-poor?" There are problems with past methods of addressing this question, notably that the measures used are inconsistent with the properties that are considered desirable for a measure of the level of poverty.

Ravallion and Chen provide some new tools for assessing to what extent the aggregate growth process in an economy is pro-poor. The key measurement tool is the "growth incidence curve," which gives growth rates by quantiles (such as percentiles) ranked by income. Taking the area under this curve up to the headcount index of poverty gives a measure of the rate of pro-poor growth consistent with the Watts index for the level of poverty.

The authors give examples using survey data for China during the 1990s. Over 1990–99, the ordinary growth rate of household income per capita in China was 7 percent a year. The growth rate by quantile varied from 3 percent for the poorest percentile to 11 percent for the richest, while the rate of pro-poor growth was around 4 percent. The pattern was reversed for a few years in the mid-1990s, when the rate of pro-poor growth rose to 10 percent a year—above the ordinary growth rate of 8 percent.

This paper—a product of Poverty, Development Research Group—is part of a larger effort in the group to improve the analytic tools used for monitoring poverty over time and studying the impacts of economywide changes. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Catalina Cunanan, room MC3-542, telephone 202-473 2301, fax 202-522-1151, email address ccunanan@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at mravallion @worldbank.org or schen@worldbank.org. (11 pages)

2667. Trade Reform and Household Welfare: The Case of Mexico

Elena Ianchovichina, Alessandro Nicita, and Isidro Soloaga
(August 2001)

Results from a two-step simulation that uses a computable general equilibrium model and detailed consumption and income household data suggest that trade liberalization benefits people in the poorest deciles more than those in the richer ones.

Ianchovichina, Nicita, and Soloaga use a two-step, computationally simple procedure to analyze the effects of Mexico's potential unilateral tariff liberalization. First, they use a computable general equilibrium model provided by the Global Trade Analysis Project (GTAP) as the new price generator. Second, they apply the price changes to Mexican household data to assess the effects of the simulated policy on poverty and income distribution.

By choosing GTAP as the price generator, the authors are able to model Mexico's differential tariff structure appropriately: almost zero for North American Free Trade Agreement (NAFTA) members and higher tariffs for nonmembers. Even starting with low tariff protection, simulation results show that tariff reform will have a positive effect on welfare for all expenditure deciles. Under an assumption of nonhomothetic individual preferences, trade liberalization benefits people in the poorer deciles more than those in the richer ones.

This paper—a product of Trade, Development Research Group—is part of a larger effort in the group to study the effects of trade policy on poverty. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Lili Tabada, room MC3-333, telephone 202-473-6896, fax 202-522-1159, email address ltabada @worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at eianchovichina @worldbank.org, anicita@worldbank.org, or isoloaga@worldbank.org. (49 pages)

2668. Comparative Life Expectancy in Africa

F. Desmond McCarthy and Holger Wolf
(August 2001)

Health outcomes are positively correlated with income, but the link is far from uniform. The key variables associated with good health outcomes (controlling for health expenditures) are access rates—to health services, to clean water and sanitation, and to education, particularly for women.

For health outcomes, is poverty destiny? McCarthy and Wolf explore this question for life expectancy in Africa, where health outcomes are positively correlated with income, but where the link is far from uniform. The key variables associated with good health outcomes (controlling for health expenditures) are access rates—to health services, to clean water and sanitation, and to education, particularly for women.

Health expenditure, either as percentage of GNP or per capita, is not a good predictor of health outcomes (endogeneity aside). The tenuous link among health expenditures, health service outputs, and health outcomes suggests marked differences in the mapping from spending to services and from services to outcomes. While few conclusions can be drawn on the aggregate level, the patterns raise questions about what share of public expenditure should be devoted to preventive as opposed to curative measures, and the relative importance of sanitation infrastructure versus traditional health care.

This paper—a product of Public Service Delivery, Development Research Group—is part of a larger effort in the group to study the health-environment-economy nexus. The study was funded by the Bank's Research Support Budget under the research project "Health, Environment, and the Economy" (RPO 683-73). Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Hedy Sladovich, room MC3-607, telephone 202-473-7698, fax 202-522-1153, email address hsladovich@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ. worldbank.org. The authors may be contacted at fmccarthy@worldbank.org or hwolf@gwu.edu. (17 pages)

2669. The Impact of NAFTA and Options for Tax Reform in Mexico

Jorge Martinez-Vazquez and Duanjie Chen
(September 2001)

The North American Free Trade Agreement (NAFTA) has had a profound impact on Mexico's economy and institutions. Mexico's tax reform should be guided not by NAFTA considerations, however, but by the objectives of higher revenues and a simpler, more efficient, and more equitable tax system.

The North American Free Trade Agreement (NAFTA) has had a profound impact on Mexico's economy and institutions. Clearly, no consideration of tax reform can ignore its role. The thinking about tax reform in Mexico requires evaluating NAFTA's effect on Mexico's economy, including its tax structure, and the effect of its tax system on trade and capital flows between Mexico and its NAFTA partners, the United States and Canada.

Martinez-Vazquez and Chen review the evidence on NAFTA's economic effects, focusing on the changes in foreign trade and foreign direct investment flows in Mexico and the effects of these changes on Mexico's tax base and ability to raise tax revenues. Using marginal effective tax rate analysis, the authors also compare Mexico's tax system with those of Canada and the United States in terms of the effect on foreign direct investment.

Martinez-Vazquez and Chen draw two main conclusions from their analysis. First, by fueling Mexico's exports and foreign direct investment inflows, NAFTA has altered the country's economic structure and hence the industrial distribution of the tax base. This transformation calls for adapting the tax structure to an economy oriented toward services and manufacturing exports. And second, Mexico's membership in NAFTA provides no significant reasons for fundamental change in its tax structure. The new wave of tax reform should concentrate on raising revenues, simplifying the tax structure, and increasing the efficiency and overall equity of the tax system.

This paper—a product of Mexico–Anchor, Latin America and the Caribbean Region—is part of a larger effort in the region to foster research in economic development and public finance. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Stephen Everhart, room F7K-262, telephone 202-473-0128, fax 202-974-4306, email address severhart@ifc.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at prcjlm @langate.gsu.edu or duanjiechen@aol.com. (58 pages)

2670. Stock Markets, Banks, and Growth: Correlation or Causality?

Thorsten Beck and Ross Levine
(September 2001)

Analysis of a panel data set for 1976–98 shows that on balance stock markets and banks positively influence economic growth —findings that do not result from biases induced by simultaneity, omitted variables, or unobserved country-specific effects.

Beck and Levine investigate the impact of stock markets and banks on economic growth using a panel data set for 1976–98 and applying recent generalized method of moments (GMM) techniques developed for dynamic panels. The authors illustrate econometrically the differences that emerge from different panel procedures. On balance, stock markets and banks positively influence economic growth—and these findings are not a result of biases induced by simultaneity, omitted variables, or unobserved country-specific effects.

This paper—a product of Finance, Development Research Group—is part of a larger effort in the group to understand the links between the financial system and economic growth. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Agnes Yaptenco, room MC3-446, telephone 202-473-1823, fax 202-522-1155, email address ayaptenco @worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at tbeck@worldbank.org or rlevine@csom.umn.edu. (23 pages)

2671. Who Participates? The Supply of Volunteer Labor and the Distribution of Government Programs in Rural Peru

Norbert R. Schady
(September 2001)

Numerous analysts have linked volunteering and participation to positive economic and political outcomes. Data from rural Peru show that volunteers have a high opportunity cost of time. They are more educated and more likely to hold a job. Other household characteristics, such as gender, marital status, length of residence, and ethnicity are also important predictors of the probability of volunteering. Controlling for household characteristics, there are also large differences across communities in aggregate volunteer levels.

Numerous analysts have linked volunteering and participation to positive economic and political outcomes. Schady uses the 1994 Peru Living Standards Measurement Survey to analyze volunteering patterns in rural Peru. He finds that volunteers in rural Peru have a high opportunity cost of time. They are more educated and more likely to hold a job. Other household characteristics, such as gender, marital status, length of residence, and ethnicity, are also important predictors of the probability of volunteering.

Controlling for household characteristics, communities differ widely in aggregate volunteer levels. These differences seem unrelated to differences in patterns of government expenditure.

Volunteering may have important benefits in building social capital and encouraging greater ownership of development projects. For example, many public programs in rural Peru and elsewhere ask that the intended beneficiaries "participate" as a means of building trust and social capital, increasing the sustainability of investments and helping self-target investments to the poor.

But Schady finds that encouraging participation by potential beneficiaries is unlikely to be an effective form of self-targeting, since people with a higher opportunity cost of time volunteer more. Moreover, social programs that require participation may have difficulty reaching some vulnerable groups, such as women and the illiterate.

This paper—a product of the Poverty Sector Unit, Latin America and the Caribbean Region—is part of a larger effort in the region to understand the factors that promote or inhibit participation and empowerment. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Tania Gómez, room I8-102, telephone 202-473-2127, fax 202-522-0054, email address tgomez@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The author may be contacted at nschady@worldbank.org. (19 pages)

2672. Do Workfare Participants Recover Quickly from Retrenchment?

Martin Ravallion, Emanuela Galasso, Teodoro Lazo, and Ernesto Philipp
(September 2001)

A lot can be learned about the impact of an antipoverty program by studying income replacement for those observed to leave the program after its retrenchment. A Bank-supported workfare program in Argentina is found to have had a sizable impact on participants' incomes.

What happens to participants in a workfare program—a program that imposes work requirements on welfare recipients—when that program is cut? Ravallion, Galasso, Lazo, and Philipp compare the incomes of workfare participants in Argentina to those of nonparticipants and past participants after a severe contraction in aggregate outlays on the program. The authors find evidence of partial income replacement, such that those who left the program were able to make up one quarter of the gross workfare wage within six months. This rises to half in 12 months. The estimates are unbiased in the presence of time-invariant errors from mismatching in the selection of the comparison group. Fully removing selection bias would probably yield even lower income replacement. Test results based on a second follow-up survey suggest that valid inferences can be drawn about program impacts from the authors' measures of income replacement.

This paper—a product of the Poverty Team, Development Research Group—is part of a larger effort in the group to assess the impact of Bank-supported antipoverty programs. The study was funded by the Bank's Research Support Budget under the research project "Policies for Poor Areas" (RPO 681-39). Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Catalina Cunanan, room MC3-542, telephone 202-473-2301, fax 202-522-1151, email address mravallion@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at mravallion@worldbank.org or egalasso @worldbank.org. (35 pages)

2673. Pollution Havens and Foreign Direct Investment: Dirty Secret or Popular Myth?

Beata K. Smarzynska and Shang-Jin Wei
(September 2001)

The "pollution haven" hypothesis states that multinational firms, particularly those in highly polluting industries, relocate to countries with weak environmental standards. Despite the plausibility and popularity of this hypothesis, Smarzynska and Wei find only weak evidence in its favor.

The "pollution haven" hypothesis refers to the possibility that multinational firms, particularly those engaged in highly polluting activities, relocate to countries with weaker environmental standards. Despite the plausibility and popularity of this hypothesis, there is little evidence to support it.

Smarzynska and Wei identify four obstacles that may have impeded researchers' ability to find evidence in favor of the "pollution haven" hypothesis:

- The possibility that some features of host countries, such as bureaucratic corruption, may deter inward foreign direct investment and also be positively correlated with lax environmental standards. Omitting this information in statistical analyses may produce misleading results.
- The possibility that country- or industry-level data, typically used in the literature, may have masked the effect at the firm level.
- Difficulties associated with measuring environmental standards of the host countries.
- Difficulties associated with measuring the pollution intensity of the multinational firms.

The authors attempt to surmount these obstacles by explicitly taking into account corruption in host countries and using a firm-level data set on investment projects in 24 transition economies. With these improvements, the authors find some support for the "pollution haven" hypothesis, but evidence is still weak and does not survive numerous robustness checks.

This paper—a product of Trade, Development Research Group—is part of a larger effort in the group to study the effects of foreign direct investment on developing countries. The study was funded by the Bank's Research Support Budget under the research project "Corruption, Pollution, and Location of International Capital Flows." Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Lili Tabada, room MC3-333, telephone 202-473-6896, fax 202-522-1159, email address ltabada @worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at bsmarzynska @worldbank.org or swei@brook.edu. (31 pages)

2674. Measuring Economic Downside Risk and Severity: Growth at Risk

Yan Wang and Yudong Yao
(September 2001)

Using Growth at Risk as a measure of downside growth risk, the authors find that higher perceived levels of downside growth risk seem to be negatively associated with long-term growth.

Output collapses and crises are a fact of life. Severe economic downturns occur periodically and have grave consequences on the poor. Wang and Yao propose a new measurement for economic downside risk and severity: Growth at Risk. Similar to the concept of Value at Risk in finance, Growth at Risk summarizes the expected maximum economic downturn over a target horizon at a given confidence level.

After providing a taxonomy of growth risks, Wang and Yao construct a panel data set on Growth at Risk for 84 countries over the period 1980–98. On average, different regional groups experience very distinct Growth at Risk patterns over time.

- Non-OECD countries experience a higher downturn risk, while OECD countries' downturn risks for both big and small recessions are the lowest among all groups.
- East Asia countries, which had been growing faster, had a high Growth at Risk for big downturns at around 6 percent, and it rose dramatically at the end of the 1990s.
- Latin America and Sub-Saharan Africa also maintained high Growth at Risk for both big recessions and small recessions through 1980–98. But for Latin America, Growth at Risk for big recessions declined in the 1990s.

The authors then investigate the relationship between downside risks and long-term average growth in a cross-country analysis. They find that higher perceived levels of downside growth risk seem to be negatively associated with long-term growth. When a country's perceived level of downside growth risk is relatively high, both domestic and foreign investors might be deterred from making long term investments in the country and instead invest elsewhere. The results suggest that prudent and consistent pursuit of socioeconomic and political stability contributes to long-term growth, and that risk management in a broader sense should be a vital part of the pro-growth and poverty reduction strategy.

This paper—a product of the Economic Policy and Poverty Reduction Division, World Bank Institute—is part of a larger effort in the institute to study and contribute to a large body of knowledge on growth. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Ana Rivas, room J4-261, telephone 202-473-6270, fax 202-676-9810, email address arivas@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. Yan Wang may be contacted at ywang2 @worldbank.org. (30 pages)

2675. Road Infrastructure Concession Practice in Europe

Franck Bousquet and Alain Fayard
(September 2001)

Europe has a wealth of experience with motorway concessions and the issues associated with concession contracts and other infrastructure funding systems, toll charges and other paths to remuneration, and risk sharing between concession authorities and concession companies.

In a road infrastructure concession, a public authority grants specific rights to a private or semi-public company to construct, overhaul, maintain, and operate infrastructure for a given period. By contract, the public authority charges that company with making the investments needed to create the service at its own cost and to operate it at its own risk. The price paid to the company comes from the service's users, the public authority, or both.

In 1999, out of roughly 51,000 kilometers of European motorways, about 17,000 kilometers (33 percent) were concessioned —16,400 kilometers by toll and 670 kilometers by shadow toll (design, build, finance, and operate arrangements). Of these, 73 percent are managed by the public sector and 27 percent by private companies. State-owned companies have been important in European motorway concessions.

Systems vary among countries, for example, in how they share risks between the concession authority and the concession company. As the motorway network has grown denser, attributing commercial risk has become more difficult. Increasingly, public authorities must play a greater regulatory role. Already, bad experiences have made the private sector reluctant to bear the commercial risk. And the commercial risk is sometimes too great to be carried by the concession company alone. Commercial risk should be controlled by mechanisms incorporated in the contract, but control of the commercial risk must not eliminate incentives.

In addition to safeguarding the community's interests, the public concession authority must increase citizen awareness about concession decisions, to ensure their social acceptability.

Formulas for determining toll charges differ through Europe. So do criteria for selecting concession companies. In 1999, the main criteria used were these:

- The amount of public subsidy required.
- The credibility of the financial arrangements.
- The project's technical quality.
- The operating strategy and price policy.
- The reputation of the concession company (whether it has a construction company among its shareholders, for example).

The increasingly frequent use of private funding must be taken into account when defining the training required by personnel responsible for monitoring the concessions.

This paper—a product of the Governance, Regulation, and Finance Division, World Bank Institute—is part of a larger effort in the institute to promote best practice in the regulation of privatized infrastructure. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Gabriela Chenet-Smith, mail stop J3-304, telephone 202-473-6370, fax 202-676-9874, email address gchenet@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. Alain Fayard may be contacted at alain.fayard@equipment.gouv.fr. (47 pages)

2676. An Alternative Unifying Measure of Welfare Gains from Risk-Sharing

Philippe Auffret
(September 2001)

Unlike the traditional measure of welfare gains from risk-sharing, the new measure presented here does not depend on the horizon, and it is robust to alternative specifications of the consumption stochastic processes and preferences. This measure shows that if international risk-sharing eliminates volatility in aggregate consumption and leads to greater consumption growth, risk-sharing can have a sizable impact on consumer welfare.

Following Lucas's (1987) standard approach, welfare gains from international risk-sharing have been measured as the percentage increase in consumption levels that leaves individuals indifferent between autarky and risk-sharing. Auffret proposes to measure welfare gains as the increase in consumption growth instead of consumption levels. When the consumption process is nonstationary, Auffret's proposed measure has several attractive features: it does not depend on the horizon, and it is robust to alternative specifications of the consumption stochastic processes (from geometric Brownian processes to Orstein-Ulhenbeck mean-reverting processes) and preferences (from constant relative risk aversion preferences to Kreps-Porteus preferences). The author then uses this measure to estimate potential welfare gains from international risk-sharing for a representative U.S. consumer.

Auffret finds that if international risk-sharing leads only to a complete elimination of aggregate consumption volatility (with no impact on consumption growth), it represents gains to a U.S. consumer of only $12 a year on average. But if international risk-sharing also permits an increase in consumption growth, it may have a sizable impact on welfare. Each 0.5 percentage point increase in consumption growth represents gains to a U.S. consumer of about $160 a year on average.

This paper—a product of the Economic Policy Sector Unit, Latin America and the Caribbean Region—is part of a larger effort in the region to analyze the impact of catastrophic risks on welfare and determine whether the catastrophic insurance function can serve a key developmental role in disaster prone countries. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Kevin Tomlinson, mail stop I4-403, telephone 202-473-9763, fax 202-676-1494, email address ktomlinson@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The author may be contacted at pauffret@worldbank.org. (23 pages)

2677. Can Local Institutions Reduce Poverty? Rural Decentralization in Burkina Faso

Paula Donnelly-Roark, Karim Ouedraogo, and Xiao Ye
(September 2001)

Can local institutions take a lead role in reducing poverty? In the past the answer would have been an emphatic no. Local institutions have traditionally been a blind spot for national governments and inter-

national development agencies. But high-performing local institutions in Burkina Faso have reduced poverty and inequality. Can this model of rural decentralization spark a reinvention of development models across Africa, using indigenous development institutions to reduce poverty and promote equitable growth?

Donnelly-Roark, Ouedraogo, and Ye present evidence that in Burkina Faso certain high-performing local institutions contribute to equitable economic development. They link reduced levels of poverty and inequality to a high degree of internal village organization. The structure of these high-performing local organizations means they can exist in a number of African countries because they depend more on internal participation rather than on any one country's cultural assets. The authors find that:

- Service-asset management groups (SAMs)—one of three local institutions identified in the study—have helped to significantly reduce inequality in participating households. SAMs are a fusion of long-standing development committees and indigenous management councils that collectively manage community assets such as water. SAMs have combined the productivity goals of growth with the values of equity and solidarity.
- Current development approaches use growth as an initiator, assuming that surpluses will be used to benefit the poor. SAMs and other local institutions in Burkina Faso *start* with equity and solidarity and aim for a result of growth and development.
- Internal participation is essential for SAMs to function. Only locally anchored participation can power the realignments and institutional revisions needed to scale up development action.

SAMs and other local institutions have launched their communities on equitable growth paths and are reducing poverty with little or no outside assistance, despite severe resource constraints. Their impact could be enormous if external development resources augmented their potential.

World Bank programs and policy interventions could build on local strength and make their activities more sustainable by mapping local institutions to guide new initiatives in pro-poor investment and using that mapping to formalize and increase internal local participation—expanding nationwide by using a network of local institutions. SAMs and other local institutions could be the vehicle for ensuring transparency and accountability. Working with the results of local activities, national policies could favor the development of indigenously based but externally oriented local economies.

This paper—a product of the Environment and Social Development Unit, Africa Region—is part of a larger effort in the region to enhance accountable poverty reduction. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Ella Hornsby, room J6-214, telephone 202-473-3375, fax 202-473-8185, email address ehornsby@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at pdonnellyroark@worldbank.org, karimouedraoguarc@fasonet.bf, or xye@worldbank.org. (39 pages)

2678. Emerging Markets Instability: Do Sovereign Ratings Affect Country Risk and Stock Returns?

Graciela Kaminsky and Sergio Schmukler
(September 2001)

Changes in sovereign ratings affect country risk and stock returns. And these changes are transmitted across countries, with neighbor-country effects being more significant.

Financial market instability has received attention from both academic and policy circles. Rating agencies have been under particular scrutiny lately as promoters of financial excesses, upgrading countries in good times and downgrading them in bad. Using a panel of emerging economies, Kaminsky and Schmukler examine whether sovereign ratings affect financial markets.

The authors find that changes in sovereign ratings affect country risk and stock returns. They also find that these changes are transmitted across countries, with neighbor-country effects being more significant. Rating upgrades tend to follow market rallies; downgrades tend to follow market downturns. Countries with more vulnerable economies, as measured by low ratings, are more sensitive to changes in U.S. interest rates.

This paper—a product of Macroeconomics and Growth, Development Research Group—is part of a larger effort in the group to understand how financial markets work in developing countries. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Emily Khine, room MC3-347, telephone 202-473-7471, fax 202-522-3518, email address kkhine@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at graciela@gwu.edu or sschmukler@worldbank.org. (34 pages)

2679. Deposit Insurance Around the Globe: Where Does It Work?

Asli Demirgüç-Kunt and Edward J. Kane
(September 2001)

Developing countries should first address weaknesses in their informational and supervisory environments before adopting explicit deposit insurance.

Explicit deposit insurance has been spreading rapidly in recent years, even to countries not advanced in financial and institutional development. Economic theory indicates that deposit insurance design features interact—for good or ill—with country-specific elements of the financial and governmental contracting environment. Demirgüç-Kunt and Kane document the extent of cross-country differences in deposit insurance design and review empirical evidence on how design features affect private market discipline, banking stability, financial development, and the effectiveness of crisis resolution. This evidence challenges the wisdom of encouraging countries to adopt explicit deposit insurance without first addressing weaknesses in their informational and supervisory environments.

This paper—a product of Finance, Development Research Group—is part of a larger effort in the group to improve the design of deposit insurance systems. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Kari Labrie, mail stop MC3-300, telephone 202-473-1001, fax 202-522-1155, email address klabrie@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at ademirguckunt@worldbank.org or edward.kane@bc.edu. (36 pages)